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ABSTRACT

A study was conducted of four urban middle schools in Boston serving 1,600 students, mostly from low-income minority families, to assess urban public school effectiveness. School level practices were the primary focus of the study, but self-reports of classroom teaching behaviors were also studied in relation to student achievement through interviews with 20 to 30 teachers in each school. The study resulted in the creation and validation of indicators that schools can use to assess their climates, set policies for reform, and choose strategies based on research. More than 90% of the students placed a high value on the importance of family and education, recognizing that they were in school to learn and get a good job in the future. Teachers in these schools were well educated and experienced, but their individual caring was not always mirrored on an institutional level. The most effective school combined emphasis on academic learning with an ethic of caring. Clarity of purpose and positive relationships among teachers were mirrored in higher levels of student achievement, higher rates of prosocial behaviors among students, and lower incidences of antisocial behaviors. Teachers who reported more frequent use of direct teaching and student-led small groups with teacher supervision had students with significantly higher levels of achievement in reading, mathematics, and problem solving. Teachers who reported more frequent use of workbooks and other individual assignments had students with significantly lower levels of achievement. Indicators of input, processes, and products were developed and are summarized. An important contribution of the study was the development of a measure of higher order thinking and problem solving for students in grades 4 through 8, the Test of Problem Solving (TOPS). In all, 56 tables and 8 figures present the study data. A 208-item list of references is included. Four appendices contain instruments used, including the TOPS. (SLD)

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MAKING SCHOOLS MORE EFFECTIVE

Indicators for Improvement

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TM015972

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Executive Summary

The problems confronting urban public schools in the United States have reached crisis proportions. Nowhere is the challenge greater than at the middle school level. Nationwide, the evidence confirms that students' academic skills plateau or decline, when they need to be developing higher level analytical and creative talents which are so important in this age of technology. More urgently, it is during early adolescence, the age of most middle school students, that our youth become vulnerable to drug and alcohol abuse, teen pregnancy, suicide, and delinquency. Children raised in poverty, broken families, and disintegrated communities are especially at risk. More and more, schools are being asked to meet the needs once provided by supportive families and caring community institutions. This is particularly so for schools in disadvantaged urban areas.

In the face of these overwhelming challenges, new findings from research offer some bases for optimism. This study of four urban middle schools serving 1,600 students, mostly from low-income, minority families, showed that more than 90% of the students placed very high value on the importance of family and education. They recognized that they were in school to learn and to get a good job in the future. Being rich, having fun, and having a current job assumed much lesser importance. For the vast majority, the American dream was still alive. It's not too late in middle grades, but schools, if not families and community agencies, must do more to shape positive expressions of these values.

The teachers in these schools were well educated and very experienced. Overwhelmingly, they were dedicated to serving their students not only in promoting their academic achievement but their moral, social, and emotional development as well. Even the most disgruntled and disenchanted teachers cared deeply about their students. However, this individual caring was evident at an institutional level only in certain schools. The most effective school combined an emphasis on academic learning with an ethic of caring. The principal was key to promoting this positive

climate. The most effective leader enabled teachers to work together as professionals and develop collegial relationships. The clarity of purpose and positive relationships among teachers were mirrored in higher levels of student achievement at all three grade levels, higher rates of prosocial behaviors among students, and lower incidences of antisocial behaviors.

The wide-spread practice of assessing school effectiveness by determining how well their students do only on standardized tests of basic skills, often a single reading subtest, was a disservice to teachers and to students. In the four sample schools, reading test scores had very low correlations with students' final grades in reading, yet the test scores were used sometimes exclusively as the basis for student assignment to programs. Teacher judgements carried little weight; only test scores counted. For some teachers, the implication was clear: Don't exercise professional judgements based on years of experience and advanced degrees in subject matter and pedagogy, just teach to the test. For more dedicated teachers, the practice was demoralizing; for students, the results were rigid tracking and self fulfilling prophecies.

School level practices were the primary focus of the study, but self reports of classroom teaching behaviors were also studied in relation to student achievement. Teachers who reported more frequent use of direct teaching and student-led small groups with teacher supervision had students with significantly higher levels of achievement in reading, mathematics, and problem solving. Teachers who reported more frequent use of workbooks and other individual assignments had students with significantly lower levels of achievement on most measures at most grade levels.

Since the use of time is a critical factor, not only in student learning but in the restructuring of schools, the study inquired how students spend their time outside of school--after school, on weekends, and during the summer. The students spend only six hours a day in school. They are dismissed in the early afternoon. Most have little else to do but watch television or hang out. Many go home to empty houses where they take care of younger siblings. The picture which emerges from the data overall is that students have few choices and little structure to guide productive use of their time.

The major contribution of this research has been the creation and validation of indicators which schools can use for themselves to assess their own climate, set priorities for reforms, and choose strategies that are based on research.

Acknowledgements

A great many individuals helped to shape this project and see it through to completion. Born of a commitment to help students in urban middle schools "before it's too late," the project joined educators from different perspectives--the university and the public schools, researchers and practitioners, administrators and teachers, faculty and graduate students--to address the critical problems of schooling for early adolescents. All agreed, not only is there an important challenge for continued academic development of these youths, the risks are pervasive; early adolescence, the age of most middle schoolers, is an age of particular vulnerability--for drop out, pregnancy, drug and alcohol abuse, suicide, and delinquency.

While the period is critical for students in all walks of life, students in the middle grades in disadvantaged urban areas stand to gain more and to loose more, depending on the quality of their school experience. The home and other units of society are no longer functioning in the roles they once were. The stresses on families have become profound. The time is indeed critical, but as the results of this collaborative research underscore, "*It's not too late!*"

Special thanks go to so many dedicated educators in the Boston Public Schools who took considered, and perhaps considerable risks, in agreeing to collaborate in this study. They were extremely helpful--in setting the agenda for the research, anticipating difficulties which would arise, making room in their busy schedules for yet another intrusion, and sharing their honest assessments of what was and what could be. Administrative aides, secretaries, and one parent volunteer made numerous important contributions as well. At the risk of omitting one of these valued contributors, I would like to thank these educators and their helpers who have given so much: Diana Lam; Joseph Bage; Valeria Lowe; Veda Daley; George Farro; Mary Gearty; Ivonne Perez; Elizabeth Prieto; Claire Dunne; Theresa Washburn; Shirley

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The success of the project in documenting what schools might do improve student achievement was contingent on getting valid and representative measures of achievement and linking these to reports and observations of school practices. None of this could have taken place without the cooperation of Mary Ellen Donahue, Director of the Bureau of Educational Research. We are also indebted to her assistant, Jeff Harris, and to other members of their staff, for responding to our requests for test scoring and data tapes, all under the most trying of circumstances, when the eyes of the city, state, and federal governments were upon them to provide analyses for still another crisis besetting the Boston Public Schools, this time over the new student assignment plan.

Indeed, we were very grateful for the award of a grant from the United States Department of Education, Office of Educational Research and Improvement, to support this field initiated research. When delays occurred which were beyond our control, our project officer, Ivor Pritchard, was extremely helpful in securring the necessary extensions. In addition, we sincerely appreciated the opportunity to address the professional staff of OERI in Washington, DC. At the invitation of Milton Goldberg, Director of OERI's Office of Research, we were honored to be able to present our findings to an appreciative audience of more than 50 people whose insightful comments and suggestions for dissemination were very useful indeed.

A great many members of the Boston University School of Education Community helped to make this project happen and reach a successful conclusion. Paul Warren gave his enthusiastic support from the start. Joan Dee won the Alumni Association's award of financial assistance to four graduate students to work on the project before any external funding was awarded. Boyd Dewey helped with many logistical solutions. Lee Indrisano was facilitative and encouraging throughout.

Peter Greer continued to offer crucial assistance to this project in Boston, even when his own accountability as a new dean was focused on Chelsea.

A team of faculty advisors, my colleagues at the Boston University School of Education, helped to launch the research plan. They offered the benefit of their considerable experience, their wish lists, their concerns, and most of all their encouragement. Robert Sperber joined me in meetings with the upper eschelons of the Boston Public Schools as well as with teachers on the front line to obtain permission to conduct the study and to secure cooperation in data collection. Don Davies continued to remind us of the importance of parents, families, and communities in any study of schooling. Kevin Ryan made sure that we addressed the role of the school in moral education. Kay Coleman provided expert guidance on the creation of new instruments. Sharon Hennessey joined the team at a critical point, offering the benefit of her experience in teacher supervision. Joseph Cronin was tremendously supportive throughout the study, supplying us with wonderful ideas, pointed criticism, good humor, and resources to keep us going when the well was dry.

Unsung heros in the Boston University School of Education whose efforts were much appreciated included Geri Sullivan, Eileen Lakey, Lisa Fay, Brenda Gershon, Ann Shea, and Paul Reardon. A number of graduate students contributed to the project: Patrick Collins, Mindee Gerstein, Robin Gottleib, David Greenhalgh, Greg Hansen, Dan Sanford, Laura Sharples, Pete Sullivan, Christine Thorpe, and Mary Williams. Jean Krasnow, Anna Wong, and Tom Bartlett deserve special mention for their contributions to instrument development, interviewing, and data collection. Carol Tiffany has been especially helpful in a number of ways, including data processing, reporting and editing. Some undergraduate students provided valuable assistance as well: Laurie Banks, Laura Hall, Rita Innskeep, and Diane Nutting.

Members of the Mathematics Department at Boston University provided outstanding and timely consultation on the statistical analysis for this study. Ralph D'Agostino, despite his extremely busy schedule, was most generous of his time and expertise. Albert Belanger afforded several professional courtesies to assist our data analysis. Most especially, I am indebted to Sylvia Fleisch, a dear colleague of more than twenty years, who had "retired." How happy I was to find that reports of her "retirement" were premature. How fortunate I was to benefit from her expert services in statistical and computer analyses, and her interest in what we had to report.

Research can be a lonely enterprise. It was very helpful to have the fresh perspectives of a handful of reviewers who found the time to criticize drafts of this report. I am grateful to Anne Wheelock, Joseph Cronin, Walter Haney, Marshall Smith, Robert Kilburn, and Mary Ann Hardenbergh for their suggestions and comments. Any mistakes or shortcomings in the report are the fault of the principal investigator.

More than anyone else, one person was indispensible to the project. Margaret Plum brought unfailing enthusiasm, energy, sensitivity and good humor to every meeting with the school personnel. She won the affection of many of our collaborators in the field and even converted some hardened cynics to the potential benefits of participation in this research. She was equally adept in working with our university team, from the most senior to the most junior member. For Margaret, it was a wonderful adventure; she was a person for all seasons, moving from task to task as the need arose, handling each one with competence and grace. We could not have done it without her.

When I undertook this study, my sons were 10 and 13, Derek about to enter, and Ryan about to leave, middle school. Now, three years later, their mother older and wiser, I am convinced more than ever of how critical these years of early adolescence truly are. I am grateful that Ryan and Derek have had the benefit of a fine public middle school. I hope that this document and other reports of the project will call attention to the evidence for continuing hope for successful development of adolescent youth in less advantaged circumstances, and most especially to the essential role that good middle schools can play in this daunting challenge.

M.H.S.
Boston

CHAPTER 1

IMPETUS FOR THE STUDY

Overview

Some things never change, or so it seems. One of the most influential books ever written about schools, the "Coleman Report" was published nearly a quarter of a century ago. Officially titled *Equality of Educational Opportunity* (Coleman, J.S., Campbell, E.Q., Hobson, C.J., McPartland, J., Mood, A.M., Weinfeld, F.D. & York, R.L., 1966), the report was widely interpreted to mean that schools don't make a difference, that educational attainment is largely independent of the schooling a child received. While no one has disputed the importance of home background to school achievement, the claim that schools don't make a difference has been largely refuted. The report has been cited in literally thousands of studies of the effects of teaching and schooling which have been written since then (Walberg, 1990), most of them criticizing what have become well known conceptual and methodological flaws in the Coleman study. One flaw which was particularly striking in retrospect was the use of a single measure of student verbal ability which was not closely geared to what schools sought to teach. Yet that practice has continued to this day, by school systems which gauge their progress on the basis of scores from a single test.

One such system is the Boston Public School System, the site of the present study, where the Metropolitan Achievement Test in Reading (Prescott, G.A., Balow, I.H., Hogan, T.P, and Farr, R.C., 1988) has assumed a life of its own as the gatekeeper for student placement and promotion. These reading scores are used sometimes exclusively as the basis for student assignment to programs; and scores below an eighth grade level disqualify students for graduation. New scores are heralded each June in local newspapers, and the success or failure of the system is seen to coincide with rising or falling MAT reading scores. Yet it has been determined for the four middle schools which constitute the sample for the present study, that reading scores and teachers' judgements of how well their students are doing in reading have a very low correlation; they have almost no overlap.

The implication is clear. Teacher judgements don't count, only test scores. These high stakes testing practices fuel measurement driven instruction. Teachers know that they and their schools will be held publicly accountable for their children's test scores. And so the solution for many teachers is just as clear. Don't exercise professional judgements based on years of experience and advanced degrees in subject matter and pedagogy, just teach to the test.

The most widely used metric for assessing school effectiveness, not just locally, but nationally, has been student scores on standardized tests of basic skills. Yet this practice fails to credit schools for the moral and social education of youth, for the quality of day-to-day experiences students have in school, and for providing health and social services meeting basic human needs for a number of students. In addition, it provides little incentive for schools to go beyond basics. This project defined more broadly the desired outcomes of effective schooling and examined the practices and conditions in the school environment which appear to promote positive behaviors.

Researchers, governmental officials, policy makers, and educators have been clamoring for better indicators to gauge the health of our nation's schools. One of the startling findings which emerged from "A Nation at Risk" (National Commission on Excellence in Education, 1983) was the dismal condition of statistical information about education in this country; if the schools were suffering from a "rising tide of mediocrity," school performance looked robust compared to the condition of the statistical data base. Since then the need for educational indicators has captured the attention of virtually every group or agency involved in the business of education from the local to the international level (Smith, 1988).

A well developed system of valid indicators in place over a period of time would be tremendously valuable, not only for describing outcomes but for anticipating problems and planning solutions. At the heart of this goal is the question of what indicators would be most valid and most useful. A debate continues about whether to include measures of the schooling process. Some researchers and policy makers have argued that outcome indicators will contribute most to our understanding of the performance of the educational system (Murname, 1987; MacRae & Lanier, 1988). Others insist that indicators of the schooling context are as necessary as outcome indicators (Smith, 1988; Oakes, 1989). This project was most persuaded by the latter position, and set out to generate and validate indicators of educational inputs and processes, as well as products.

Indicators of Inputs

The same limited measures which have been used for the past 25 years to assess the results of schooling--most notably, standardized, multiple-choice tests of low level knowledge and skills, as well as drop-out, retention, and graduation rates--are still being used today. They were woefully insufficient then; they are even more inadequate now. What's more, educational inputs have changed, and the demands placed on educational institutions have increased dramatically on every front, but particularly in urban areas.

Albert Shanker likens the efforts to shape up educational systems through a regimen of tough, businesslike regulation of standards to stepping up an old assembly line which is hopelessly inadequate. Questioning reforms which demonstrate an ill founded faith in the traditional model of education that seems almost religious, he offers a short course in recent history of education. Fifty years ago, times were simpler. Broken families were unusual; parents pushed their children to excel; mothers stayed at home; commercial television didn't exist; drugs were practically unknown. But even under these conditions, only 20% of students graduated from high school. Not until 1953 did a majority graduate (Shanker, 1990, p. 347). Not only are circumstances different today, times have changed in other ways. What used to be considered education for the elite, must be available to the masses. Basic skills are not sufficient for most work in the 21st century. We need a labor force and a citizenry able to think for a living.

Who are the students attending our nation's schools today, particularly our urban public schools? Who are they, not just in terms of general demographic characteristics, but what do they value, and what are their hopes for the future? Who are the important adults in their lives, and what importance do their families place on education? How do these students spend their time outside of school, after school, on weekends, and during the summer?

The changing complexions of the student body are obvious, and so are the kinds and number of languages spoken. Stereotypes abound as to what these children are able to do and what their families want; only some of these stereotypes are accurate; happily most are not. Indicators which report on these issues can help to dispel stereotypes and encourage more appropriate high expectations for all students. Many responsible educators are worried about the emergence of a permanent underclass. These are young people who have lost the dream, who no longer have hopes for a better future forged through family ties, education and hard work. The same indicators of values would aid early identification of these individuals so desperately in need of assistance.

What inputs are there from the teachers' point of view? What do they care about? What is important to them professionally and why did they choose teaching? Why do they remain in teaching? What opportunities are available to them to grow and develop as professionals? What priorities do they think their schools should set for meeting students' needs? How do principals and their administrative teams feel about the same issues?

Indicators of Processes

Two decade ago, research evidence was seen to indicate that whatever we try to do to improve schools, it won't make a difference in the disparity between the academic performance of children of the poor versus the well-to-do, of blacks and minorities versus whites. Family background factors, not school factors, correlate most highly with student achievement (Coleman, *et al.*, 1966; Jencks, *et al.*, 1972; Smith, 1972). But this old generation of research examined school inputs in relation to school outputs, without regard to what took place inside schools. The new generation of research on school effectiveness does not dispute the critical importance of home background on student achievement; rather, the newer studies address factors which can influence student learning at the school and classroom level. Thus, in a major paradigmatic shift, the black box model of research on schools was replaced by more illuminating process-product studies which could look inside schools to examine what could done to promote student learning.

Results of the new generation of studies have been much more encouraging. Excellent summaries have been offered by Blum and his colleagues at Far West Laboratory (1986), Cohen (1983), Good and Brophy (1985), Purkey and Smith

(1983), and Walberg (1990), among others. Effective schools start with effective teachers--those who have a high sense of efficacy and responsibility for their teaching (Berman et al., 1977; Aston, Webb & Dodo, 1982). They set high expectations for their students and hold students accountable for learning (Brookover *et al.*, 1979; Good, 1982; Rosenshine 1979; Stallings & Kaskowitz, 1974). The evidence for the effectiveness of these classroom level behaviors is even more striking for traditionally low achieving students. Within such businesslike, task-oriented environments where rules of conduct and academic procedure are clearly explained, effective teachers use well organized, well prepared lessons which engage students in more time on task, especially in greater amounts of academic learning time, than those teachers who are less effective in improving student learning.

Building level practices beyond the control of the individual teacher also contribute to effective schools. While much more is known about effective teaching practices from studies of the classroom unit, research is mounting on dynamics in the more complex organizational structure of the school in relation to student leaning. Factors which emerge in the research with some consistency include both the academic and the social culture of the school. First, effective schools, especially those at the elementary level, appear to have tight coupling between the stated curriculum and instructional practices--schoolwide. Clear goals are publicly stated. The differences between classes is not great; the individual teacher's right to autonomy is superseded by the teachers' collective responsibility for coordinating curriculum across classes and grade levels. What's more, the tests used to evaluate teacher effectiveness and student performance closely match the stated objectives.

By the time the present study was conceived and designed, the second wave of school reform was about to begin. The first wave, propelled by news of the "rising tide of mediocrity," was characterized by tougher standards and more control: increasing graduate requirements; imposing grade retention and other sanctions for poor performance; more standardized testing; more prescriptive certification processes, and more formal teacher evaluation. The second wave has a more exciting agenda, including participatory school based management; cooperative, collegial school environments for both students and staff; flexible use of time; and emphasis on higher order skills for all students.

What happened in between was growing awareness that we may be on the wrong track. The central theme of the first wave of reform was competitiveness, evidenced in calls for setting standards by tests, whose own psychometric qualities were suspect. The limits of testing were ignored as more and more testing was prescribed. The evidence began to mount that these kinds of reforms would fall far short of their goals, and even be counterproductive. In a major study of 1,000 public and private high schools, Chubb & Moe (1988) compiled profiles of high and low performance schools--those in the top and bottom quartile of composite academic achievement measures. The profiles addressed four characteristics: formal structure; informal organization; classroom practice; and student bodies. Their analysis turned up small differences in formal structures and classroom practices, and, not surprisingly, dramatic differences in their student bodies, the more advantaged students attending the high performance schools.

What was much less predictable was that the schools at the top had strikingly superior informal organizations. The top schools had a mission focusing usually on goals such as mastery of learning, the development of student self-esteem and efficacy. Principals were more successful in gaining their teachers' confidence and in communicating and pursuing a vision of what the school should accomplish and how teachers can contribute through instruction. Decision making was more democratic and relationships more cooperative. Teachers in high achieving schools were more knowledgeable about each other's work, each other's students, and each other's course materials. They were more helpful to one another; in short, they were better colleagues (Chubb & Moe, 1988).

The importance of school climate for school effectiveness cannot be underestimated, according to the findings of other major studies as well (Brookover, et al., 1979; Epstein & McPartland, 1976; Rutter, et al., 1979; Ellet & Walberg, 1979; Powell, Ferrer, & Cohen, 1985; Goodlad, 1984). The school climate communicates important messages for peer group norms, student interaction, and student – teacher interaction. There is also important research on how work norms among the faculty appear to be especially important determinants of school effectiveness (Little, 1983). When teachers have a shared sense of collegiality and collectively embrace the need for continuing improvement, they create more constructive and productive environments for teaching and learning .

While the findings from research on what effective schools are like are becoming increasingly clear, how to transform an ineffective school into an effective one remains a major hurdle. This project set out to help schools begin that process for themselves, by collaborating with schools in the development of indicators, grounded in research, which they could use to establish baseline data on their own school climate. We benefitted from Anderson's (1982) excellent critique and synthesis of school climate indicators which concluded that most existing measures of school climate focused on only a few dimensions of school climate; they were seldom combined to capture the essence of climate.

We subscribed to Anderson's (1982) conceptualization of climate, adopted from Tanguir (1968), for identifying the factors which are perceived as shaping a school's climate. Climate is a summary concept which includes the ecology (physical and material aspects), milieu (presence of persons and groups), social system (patterned relationships among persons and groups), and culture (belief systems, values, norms, and meaning reflected in behavior). We tried to develop comprehensive measures which would examine several of these important components in relation to achievement, from several perspectives--the students', teachers', and administrators'--using multiple methods--observation, interview, questionnaire, and the schools' ongoing record system.

Indicators of Products

"Conclusions about the direct instructional effects of schools should not have to rely on evidence relating to skills taught incidentally" (Madaus, Kellaghan, Rakow, & King). We would not repeat this mistake made by the Coleman study (Coleman *et al.*, 1966). Instead, we sought measures of specific achievement which were closely aligned with what the schools attempted to teach. While teaching to the test was prevalent in the schools which would constitute our sample, we sought not to use standardized tests of basic skills as the principal criterion measures of academic achievement. Instead we hoped to use criterion referenced tests developed by teams of teachers to assess performance on local objectives which would be used system wide. In either case, it would be important in a system whose teachers and students felt "tested to death" not to request additional testing time which would duplicate what the system already imposed on itself.

A major contribution to the need for indicators which has been attempted by this project is the refinement and validation of an efficient measure of higher order thinking and problem solving which might be used for students in grades four through eight. Set in the context of real life problems thought to be of interest to the target age group, the items on the new test were developed to measure scientific reasoning, including the student's ability to identify and define problems; decide what information and investigations would be needed in order to find some solution to the problem; judge the adequacy of hypotheses; detect flaws in data gathering procedures or errors in the data themselves; organize, analyze, and interpret the data; suggest some solution to the problem based on the data; and suggest ways to implement the solution (Shann, 1976, p. 65).

Not only did we set out to go "beyond basics" in the development of a new cognitive measure, we wanted to generate indicators of the quality of life in schools, the sense of caring and belonging felt by the students and reflected by the teachers. In addition, we wanted indicators of prosocial behaviors in schools as worthy outcomes in their own right, not only as enablers of higher academic achievement. The kinds and frequency of volunteer service which students offer to their communities were also of interest.

Increasingly, schools are being targeted as the center for the dissemination of a broad range of health and social services. This is particularly so for schools in disadvantaged urban areas. Here many students go to school to find an environment which is safer, warmer, or more secure than home, where they can get a nutritious breakfast and lunch they would not otherwise have, and where they can interact with caring adults. Hospitals, courts, and other social agencies have targeted urban schools as the points to access children and youth in need of prevention and intervention programs, before it's too late. Schools are being charged with meeting basic human needs formerly served by the family, the church, and other institutions in society. Without these services, we may well have a society in chaos. Our instruments were designed to document from the teachers and the students points of view whether these services were being provided and how important they were to the recipients.

Significance

Of special significance is that the research has been conducted in middle schools which until recently have been largely ignored in the school effectiveness literature. On several counts, it can be said that here is the level of greatest need for inquiry on effective school practices. The curriculum at this level nationally has been termed a "wasteland" by responsible educators. Moreover, it can be argued, here is where the trouble begins. Academically, basic skills plateau or decline, as attested by recent reports of test scores released for the Boston Public Schools. Nationally, data from the National Assessment of Educational Progress mirror the same pattern, with declines in criterion-referenced performance measures beginning at the fourth-grade level. But the risks are pervasive; early adolescence, the age of most middle schoolers, is an age of particular vulnerability--for drop out, pregnancy, drug and alcohol abuse, suicide, and delinquency.

Schools can and do make a difference. Students at greatest risk for failure in life are those who drop out of school, who do not achieve basic functional literacy skills. Using appropriately designed studies and sensitive indicators of what schools actually try to do, evidence can be obtained to document the successes achieved in effective schools. The research can also be used to establish the linkages between effective practices and the desired outcomes, and to guide efforts to make other schools more effective. It is this kind of evidence which can be most persuasive in seeking greater public and corporate support for school improvement.

CHAPTER 2

STRATEGIES FOR COLLABORATIVE RESEARCH AND THE REALITIES OF URBAN MIDDLE SCHOOLS

Preliminary Efforts at the University

In March, 1987 the principal investigator convened a group of senior faculty and doctoral students to consider university-school collaboration in research on school effectiveness. Each of the doctoral student participants had taken a research course with Professor Shann in the previous four semesters, a course which featured topical seminars in teacher and school effectiveness and which required students to produce research plans extending the state of knowledge and informed practice in these areas. Outstanding students were invited.

The group added new members and continued meeting into the summer. By Fall, 1987, we had established a clear consensus: that research on school effectiveness was inherently limited in its over-reliance on measures of basic skills as *the* measure of effectiveness, and that middle schools were largely ignored. (Most of the U.S. work focused on elementary schools and to a lesser extent secondary schools, although the reverse was true for British studies.) Yet, middle schools are probably the last chance to intervene effectively into the cycle of ignorance, poverty, and failure which afflicts the urban poor and underclass.

We endorsed the model of school effectiveness proposed by Fred M. Newmann and his colleagues (1987) to guide their research at the National Center on Effective Secondary Schools. Their focus on student engagement as the most direct influence on student achievement can be generalized to other outcome measures beyond basic skills. We wanted to examine practices which might heighten students' engagement of academic, social, and moral issues--through teacher-student interaction, curricular structures, and the culture of the school.

We also benefited from continuing communication with Joyce Epstein and consideration of the research program for effective middle schools at the National Center for Research on Elementary and Middle Schools. Their comments on group diversity and individual variability, the development of self reliance balanced by continuing adult supervision, and other dilemmas posed by conflicting needs in the developmental stage of early adolescence guided our observations and interviews which we used to document instructional as well as noninstructional influences on adolescent engagement and achievement (Epstein, *et al.*, 1985).

Collaborative Planning with Colleagues in the Schools

A cornerstone in the planning for this research was that it must be collaborative, i.e., university-based researchers, both faculty members and doctoral students, must work collaboratively with teachers, principals, and other practitioners in the field to shape the research questions, implement the design, analyze the findings, and translate the results into practice.

Boston University has had a long history of collaboration with the Boston Public Schools. While the University has developed many linkages, citywide, it has worked most closely with one district in the system. Ushered in as part of the court ordered desegregation plan instituted in 1975, the paring linked Boston University with schools in that district, then, as now, serving poor minority neighborhoods, with increasingly diverse ethnic minorities and different languages represented.

Starting with the Central Office in September, 1987, we pursued our request with the district superintendent. Both the central office representative and the district superintendent stated support for the project. Both understood the research need for variance in the schools' achievement levels, and both were sensitive to the probable reaction of schools publicly labeled "low achieving" toward participation in still another threatening study. The district superintendent recommended that we take all four middle schools in her district, in order to prevent the inevitable response, "Why us?" The four schools were variable in their rates of student achievement--whether their performance was measured by test scores, or whether the assessment was the estimate of knowledgeable observers--but all four schools served students from economically disadvantaged urban families. We were well advised to seek collaboration in the research in the district we had worked with most closely in the past.

Students in these four schools can be described as low income, inner city youth, with a concentration of Blacks and Hispanics and a growing number of diverse ethnic and racial minorities. These schools have, on average, fewer than 10% whites. School 1 enrolled approximately 700 students in 1989; Schools 2 and 4 enrolled approximately 400 to 500 students, and School 3 had almost 300 students, including a substantial number of special needs students--approximately 100--who attend a school within a school.

We were able to meet with the principals of the four middle schools chosen for the sample in Spring, 1988 to discuss the research and inquire about their willingness to begin a long term (three- to five-year) collaborative effort. Initial skepticism, even cynicism, gave way to more positive discussions of possibilities for building the schools' capabilities and providing incentives for teachers who had seen many a researcher come and go without ever hearing the results. (Doctoral students galore from several area universities had invaded their midst; faculty members reportedly were no more thoughtful of their hosts; some even "went public" with still another negative report to the local press.) The principals were listening, but their teachers had to be persuaded as well.

By June, 1988, the research team had met with some 20 to 30 teachers at each of the four middle schools to explain the project, and to request initial participation in the form of answering a draft of the school climate questionnaire for teachers, commenting on the instrument, and advising what additional issues should be addressed. Four doctoral student participants were supported to assist with this instrument development and data collection by stipends awarded from the Alumni Fund of the Boston University School of Education. No support for release time or other expenses was available to the project at that point. Even so, the principals and the teachers wanted to know: "What's in it for us?"

Our initial meetings with the four schools to pursue this research suggested that frequent and sustained contact with the teachers and administrators would be needed. While they were weary and skeptical, even the most cynical seemed eager for opportunities for true collaboration. Adding to their list of "what's in it for us," they identified a long list of "perks" and incentives for teachers, and items for the school. Some requests had no relationship to the proposed collaboration. Advised that any potential sponsor for the research would want to see a rationale for the item which was project related, the list became more focused, including but not limited to: credentials as Boston University "Research Associates" for those who take primary responsibility for effecting the collaboration; dynamic and knowledgeable speakers to liven their professional days; expert consulting on translating research into practice, particularly in the areas of moral education and mastery learning; and information on the latest educational research. Most of these requests were incorporated into the research plan. A line item in the budget was designated to purchase journal subscriptions and recommended research references to start professional libraries in each of the schools for teachers. Reprints and photocopies of selected articles were exchanged on a regular basis.

Research Advisory Council

As the collaborative planning took hold, we needed to identify a smaller number of participants from the schools who would share responsibility for data collection and work with the university-based researchers in all aspects of the implementation and reporting of the research. An advisory committee was formed. Numbering 35 representatives in all, its university based participants included: the project director and five additional senior faculty members of the BU School of Education, the project coordinator and two other advanced doctoral students. The school based representatives included the district superintendent and a team of six people from each of the four schools--two administrators and four teachers. We asked that three of the teachers from each school be chosen to represent each of the middle grades and one to represent non-graded support services or special programs. We also asked each school to invite a parent to join its team, however, only one school was able to involve a parent in any substantial way.

Two general meetings of the advisory council were conducted as late afternoon workshops and dinner meetings at an attractive conference facility located on the campus of Boston University. The first workshop was used to review a final draft of the student questionnaire, scheduled for administration the following month. Were we asking the right questions? What difficulties did the teachers envision in the administration, and what could we do to facilitate the process? The second conference workshop five months later was used to review the results of descriptive statistical analyses from this questionnaire and to seek advice from the field based representatives on how to translate our research findings into meaningful guidelines for practice for their teachers. A social hour from 5:30 to 6:30 was used for informal discussion; then a dinner was served. This format was selected after discussing with principals and teachers "what's in it for them." They wanted to be treated like professionals, given a voice in shaping the agenda, and recognized for their insights and experience. "A nice dinner meeting in a pleasant surrounding would insure good attendance." Again, we had been well advised.

In addition to the conference meetings, the research team members met regularly as the need arose with advisory council representatives as well as other professional staff at each of the four schools. Periods of data collection with the students and teachers required several trips by the project team members to each school. Teacher interviews were scheduled at the convenience of each teacher, requiring many more visits.

After the data were processed and analyzed, and results were available informally, we invited the principals or the directors of instruction individually to join the principal investigator and project coordinator for meetings over lunch at the University's Faculty Dining Room. The review and discussion of the results often continued into the afternoon, as we collaborated in interpreting the results and sought advice on how to communicate the findings to their teachers. These efforts to date and the requirements for collaborative research have been recounted in some detail to underscore the demands which truly collaborative research entails. There are no short cuts.

The Focus on Indicators

Tremendous strides have been made in knowledge about school effects and about characteristics of effective schools since the "gloom and doom days" of the late 1960's and most of the 1970's, which were triggered by the Coleman Report (Coleman et al., 1966) and fueled by several critical studies which followed (Plowden Report, 1967; Jenson, 1969; Jencks, 1972; Averch *et al.*, 1972). Since then we have learned a great deal about effective teaching practices, effective leadership practices, positive school climates, staff development, the importance of collegiality, teacher empowerment, and more. What we don't know as much about is how to translate these research findings into practice--how to maintain such a fragile entity as an effective school, and how to turn ineffective or less effective schools into more effective ones.

A step toward the solution of the newer puzzle is acquiring the ability to gauge and monitor the health and efficiency of an educational institution in order to point the way toward its improvement. In order to do this, we need indicators. Selden (1988) noted that perhaps the most alarming outcome of the spate of reports on the health of American public schooling which began with *A Nation at Risk* is how little we knew about our own schools and schooling. What constitutes an indicator, what to measure, at what level, how, how often, and how the results should be used, by whom, remain topics of keen interest and debate (Kaagan & Smith, 1985; Oakes, 1986, 1989; Porter, 1988; Richards, 1989).

Several researchers have pointed to the need for a comprehensive set of measures to guide reform (Smith, 1989; Oakes, 1989). Anderson's (1982) excellent critique and synthesis of school climate indicators concluded that most existing measures of school climate focused on only a few dimensions of school climate; they were seldom combined to capture the essence of climate. Others like Cuban (1982) warned against choosing reforms from a laundry list of strategies for making schools effective without considering the health of the whole enterprise.

Anderson's (1982) conceptualization of climate, adopted from Tanguir (1968), was useful for identifying factors which are perceived as shaping a school's climate. The four categories of variables were: ecology (physical facilities and material resources); milieu (characteristics or attributes of the individuals in the school); social system (patterns or rules of operating and interacting in the school); and culture (variables that reflect the norms, belief systems, values, cognitive structures, and attitudes of persons within the school). Smith (1989) advised thinking of a fully functioning system as one made up of three parts: inputs and resources, processes, and outcomes. Further he noted that these three components are connected through relationships that are direct and indirect, unidirectional and reciprocal, and causal.

The research team endorsed these frameworks and guidelines, and we established additional criteria of our own. The measures of school climate should capture in operational form as much as possible of what is reported in the literature on effective schools. As well as being comprehensive, the measures should tap different perspectives. Multiple indicators of the same variable should be achieved for cross validation purposes whenever possible. Indicators of student outcomes should go beyond basics. We would not ignore available data on standardized tests of basic skills, but we preferred criterion measures of academic objectives which the teachers actually taught. Most especially we developed a test to measure higher order thinking and critical reasoning in the context of solving realistic problems involving science and mathematics. Finally, we were intent on including measures of prosocial behaviors and other positive student outcomes which were non-cognitive in nature.

Development of Comprehensive Measures of School Climate

A review of indicators used in previous studies was completed. The review included instruments developed by Halpin and Croft (1963), Stern (1961), Sinclair (1970), Coughlan (1970), Brookover et al. (1979), Rutter et al. (1979), Epstein and McPartland (1976), and Dorman (1986). Suggestions from advisory groups to state policymakers (e.g., Goodson, Swartz, and Bronson; Abt Associates, 1987) and recommendations by Wynne & Walberg (1986) regarding the assessment of character development were also considered. We agreed with Anderson's (1982) earlier assessment; no existing measure which we could locate provided a comprehensive view of school climate. Accordingly we set out to develop new instruments which would measure various aspects of school climate as perceived by the students and by the teachers. We preferred to use regular meetings, observations, interviews, and informal conversations with the principals to assess their perception of and influence on school climate. Quantitative analysis of a sample of four would not be meaningful; we also noted that leadership behaviors might emanate from individuals other than the principal. We considered seriously ways to include the parents' points of view in this assessment, but we did not have the resources to do so.

Parallel forms of the climate survey were drafted, first for the teachers, then for the students. The teacher questionnaire was piloted with our collaborators in the schools in May, 1988. We solicited their reactions to the instrument as to substance and form. Suggestions from the advisory board members and continuing review of the literature also guided the changes we made, including the addition of several sections and changes in format. While we were interested in achieving a comprehensive assessment, we were also mindful of the need for a manageable and parsimonious, as well as useful set of items. The final form of the teacher questionnaire was administered in May, 1989. It is shown in Appendix A.

The topics and issues which the teacher questionnaire addresses are listed below:

Demographic Characteristics of the Individual
Professional Preparation and Experience
Current Responsibilities
Areas and Extent of Involvement in Decision Making
Collegial Behaviors Among Teachers
Perception of Factors Influencing the School's Curriculum
Professional Values, Their Importance and Satisfaction
Areas of Success and Priorities for the School's Meeting Student Needs
Frequency of Use of Various Instructional Methods
Factors Influencing His/Her Teaching Objectives
Frequency of Pro and Antisocial Behaviors and Examples of Each
Ranking of the Teacher's Actual and Ideal Job Responsibilities
Ranking of What the Principal's Job Should Be
Sources of Satisfaction and Dissatisfaction About Teaching in His/Her School
Participation in Decision Making
Participation in Professional Development Outside of BPS Role
Special Characteristics of His/Her Middle School
Critique of the Questionnaire, Especially Areas Omitted

The student version of the School Climate Survey had as many as ten revisions and four pilot tests before we arrived at its final form in February, 1989. The first pilot test was conducted with a sixth grade class in an urban community adjacent to Boston. Additional pilot tests were conducted by two graduate research assistants who also had field placements working with low achieving sixth grade students in another urban school near Boston. The students involved in the pilot tests shared many salient demographic and educational characteristics with the eventual sample. With permission from the host schools, the research assistants told the students that this was not a test, but an effort to find out ways to make schools more effective. Students were advised to ask questions as they went along, about items and/or words they did not understand. Upon students' completion of the questionnaire, the research assistants again asked for points of confusion and noted any difficulties or misunderstandings. Their recommendations were incorporated into the successive revisions.

The Student Questionnaire inquired about the following topics and issues:

Demographic Characteristics about the Individual
Participation in Any Special Programs
Mode of Transportation to School
Reasons for Coming to School
Life Satisfaction
How He/She Spends Time Outside of School--
    After School, on Weekends, and during Summer
Participation in Volunteer Work
Parental Involvement and Regard for School
Important Adults in the Student's Life
Self Report of Grades
Assessment of the Teacher's, Principal's, and Student's Jobs in School
Choice of Adult for Help with a Serious Personal Problem
Clarity of Rules of Discipline
Rewards and Punishments in the School and How They Are Enacted
Student's Own Value System
Frequency of Pro and Antisocial Behaviors Observed in School
Perception of Teacher Behaviors in Relation to School Climate
Perception of Collegiality and Comradely Among All Persons in the School
Perception of Communal Sense of Purpose and Pride

The student questionnaire was translated into Spanish and Vietnamese, for those bilingual groups which were predominant in the sample schools, so that each school could choose the version likely to yield high quality data for each of their students. At the suggestion of the teachers on the advisory board, bilingual teachers were available to aid in the administration of the questionnaire to students who had limited reading proficiency in any language.

Copies of the questionnaires had been delivered to the schools in the required numbers in each language version one week prior to the date scheduled for administration. Labels provided by the schools or the Central Office were pasted to the upper right of each copy. The labels identified the students by name and by a six-digit code which was needed to match each student's questionnaire responses with their scores on various achievement measures. Without the match, only descriptive research could be accomplished; with the match, more powerful, causal-comparative research was possible.

Students were told by their teachers that the survey was anonymous, but that the ID code was needed to match their answers on the questionnaire with other data which would also be anonymous (their achievement test scores). Once the matches were made, the codes would be destroyed. The students were asked to ink out their names, but not the ID number. The vast majority complied with our request, but a handful found ways to obliterate any number held up to the light.

Administration was accomplished in each school to the total school population on a day chosen by the school. The school based team members had been asked to review the procedures with their colleagues. The main offices lent assistance with their public address system. The Boston University team and several graduate assistants were on hand to answer questions. As announced by the PA system, we positioned ourselves on various floors and corridors to be accessible by the teachers to answer questions and respond to any difficulties.

Cooperation from the schools was outstanding. The rate of returns from administration of the student questionnaire virtually equalled the attendance for the day--80%; the rate of usable returns showed very little attrition. The completed questionnaires (with students' names removed and student ID codes for the vast majority intact) were taken by the University research team members back to the University where they were picked up for data processing.

Traditional Measures of Student Achievement

The Boston Public Schools require the administration of a number of norm referenced and criterion referenced tests of basic skills. We did not request additional testing which would have duplicated these efforts. Rather we requested tapes of the data for the four schools in our sample schools so that we could conduct additional analyses. As agreed in the preliminary phases of planning for this research project, the Bureau of Research of the Boston Public Schools provided to the principal investigator a tape containing the following information for students in each of the four sample schools: 6-digit ID code (to enable the match with the student questionnaire records); standard scores from two subtests of the Metropolitan Achievement Test, i.e., Reading Comprehension and Mathematics Total Scale Scores; scores from the Boston Public School System's own Criterion Referenced Test in Mathematics (CRT-Math); and final grades in all academic subjects: Reading, English, Mathematics, Science, and Social Studies. (Grades in Health for seventh graders only were included on the tape but these could not be used due to the high number of missing cases.)

The Metropolitan Achievement Tests were administered during the second week of May, 1989; the CRT-Math was given in June, 1989. Teachers assigned final grades during the last week of June, 1989. The bases for their grades were said to include test, quizzes, homework assignments, class contributions, and special projects. However, this could not be confirmed, and teacher idiosyncrasies in grading were assumed to be the case. The only final grade which had some system-wide consistency was said to be the grade for English which had to include 20% consideration given to student's performance on a writing sample.

The tapes were to have been made available to the principal investigator by the beginning of July, 1989, however they could not be obtained until the middle of October, 1989. The unit which needed to score the tests and assemble the data tapes for us had to devote all of its staff, full-time, to the problems of the new student assignment plan. The Boston Public School System had not experienced such difficult times since the court ordered desegregation years of the middle 1970's. Controversy over the new student assignment plan was heightened by projected budget deficits and the Boston School Committee's approval of the Superintendent's plan to close several schools and consolidate others, without public hearing. The plan was invalidated by one court, then reinstated by an appeals court. Implementation fell first to the School Department's Office of Information Systems, whose services were needed to obtain the test data. Research was not their top priority.

A Measure of Higher Order Thinking

A measure of higher order thinking called Test of Problem Solving Skills (TOPSS) was developed by the principal investigator for the evaluation of Unified Science and Mathematics for Elementary Schools (USMES), an interdisciplinary curriculum whose development was sponsored by the National Science Foundation (Shann, 1976, 1977a, 1977b). Targeted for administration to students in grades 4 through 8, the original, 46-item TOPSS had internal consistency reliability of .86. It yielded scores which showed predicted increases in skills over grade level, and was further validated against teacher judgements of their students' abilities in problem solving in a national sample of 40 schools from 18 states.

The original TOPSS measure was revised and shortened to become TOPS, Test of Problem Solving, according to the recommendations made in the previous study (Shann, 1976). The language was updated. Children's names and surnames were varied to reflect the predominantly black and Hispanic student enrollments in the sample schools of the present project. The revised edition of TOPS contained five items each on the following topics: "Pets in the Classroom;" "Bike Transportation;" "The Window Sill Garden in Mrs. Jackson's Class;" and "A Busy Corner." The final set called "A Classroom Temperature Chart " contained six items. Internal consistency reliability for the 31-item test was .85, based on 972 usable returns from the four schools of the present sample.

TOPS was administered the last week of March, 1989 in each school by the teachers during students' science periods. Since these periods varied, we were not able to collect data from the entire school at one time, as had been the case with the student questionnaire. Students answered the TOPS questions using a machine scoreable answer sheet which was precoded with their name and 6-digit ID code. The format was familiar because it was the same form which the system used for other tests.

While the number of usable returns was substantial, at 972, it was significantly lower than 1583, the number of usable returns from the student questionnaire. Most of the attrition was attributable to two of the four schools. In one of these schools, the teachers felt that TOPS was too difficult for many of their students. The other school changed its procedure for gaining parents' or guardians' permission for testing. In the case of the student questionnaire, which was administered first, the school, using our suggested form letter, notified parents that administration had been scheduled, and if they did not wish their sons or daughters to participate, they should notify the school. Very few objected, but one was loud in her criticism--after the fact. For the administration of TOPS, the principal decided to collect signed permissions from parents and allow only those students who returned slips to take the test. (When this story was told six months later to the new principal in that school, he knew immediately who the parent must be. He was correct.)

We had also requested that teachers rank order their students in these classes with respect to the students' problem solving skills; we asked that the teachers do this while their students were taking the test. Two schools forgot to give the rating instructions to the teachers, and the data could not be reclaimed at a later time. Intrusions on the schools' schedule had become more and more numerous, especially for testing, and additional requests of teachers were not advised.

The Elusive Student Head Count

Determining the return rates and completion rates for all available measures of student achievement was important for assessing the representativeness of the data base for the study. However, confirming the total number of students enrolled in each school proved to be problematic. School officials quoted numbers from their records, and these figures were generally consistent with the number of full time equivalent (FTE) students reported in the *School Profiles 1988-89* published by Boston Public Schools Office of Research and Development. Yet, if the FTE figures are correct, the schools have missing achievement data for significant percentages of their students.

As reflected in Table 2.1, the complement of the student data base varies by school and by the particular measure of data collection. Even in School 1, whose records are most complete, final grades are consistently reported for only 83% of the declared number of FTE students. Arguably, the number of final grades assigned in the major subject areas of mathematics and English provide the most accurate gauge on the number of students actually participating in the schools' programs. "Hard core absentees" and transfers too new to grade would be eliminated from the count, but the number would reflect those students who are absent occasionally, whereas the test measures collected on a single day can be no higher than the attendance rate for the day.

The usable return rates for the Student School Climate Questionnaire compare favorably to the rates for other data, both test scores and final grades, which the schools collect for themselves. The return rates for the questionnaire were consistently highest of all measures. Usable return rates for the Test of Problem Solving were judged to be adequate only for Schools 1 and 4 which were two-thirds of the FTE and 80% of the questionnaire completion rate. The completion rates for TOPS in School 2 and 3 were 21% and 35% of the respective FTE's, indicating nonrepresentative samples for those schools.

The data in Table 2.1 suggest that the reported FTE's may be inflated. The FTE is computed to reflect the percentage utilization of each school's stated capacity. It is an important figure because resources are allocated according to FTE's. However, varying attendance rates as well as admissions and transfers render the enrollment picture a moving target.

Interviews with Teachers

The "point person" for each school-based team through whom we addressed our requests and responses to each school and scheduled dates for data collection was usually the Director of Instruction, a position at the level of vice-principal. It was this person who helped to identify teachers willing to be interviewed by a member of the university-based team, who also represented a cross-section according to the following attributes: grade levels taught, responsibility for regular instruction versus special programs, gender, race/ethnicity, and years of experience teaching. We sought first three teachers at each grade level and three teachers of non-graded or special programs which cut across grades, or 12 teachers per school. If teachers selected for interviews could reflect variability on the remaining factors--gender, race, and experience--we asked that they be considered as well.

The list of teachers willing to be interviewed, their availability before, during, or after school, and their preferred telephone numbers, home or work, was obtained by the project coordinator. Members of the research team scheduled interviews with each teacher individually, according to the information supplied. Typically, each interview lasted 45 minutes to one hour. Only the broadest of guidelines were used to structure the interview: "What do you like most about teaching in this school? What would you change?" Few prompts were need for these teachers to say what they liked and didn't like about their schools. Interviewers, as much as possible, took verbatim quotes but without audio tape. Notes were transcribed immediately and circulated among other members of the team who were also conducting interviews. Periodic analyses of the interview results and the success of the format took place at meetings of the project staff.

Interviews with Principals and Other Administrators

Formal "interviews" were not scheduled with the administrators, but in fact a great many interviews with these people took place over the course of the project. We listened to their vision for the school, their concerns, their plans for undertaking reforms, and their assessments of how well things were going, and why.

Observation

Frequent site visits afforded numerous opportunities for informal observation in the schools. In particular we were able to note interactions between administrators, between administrators and teachers, and among teachers. Since ours was not a study of classroom level teaching and learning practices, we had limited opportunity to observe students in classrooms, but we were able to monitor student behavior in common areas of the schools, like the lobby, corridors, cafeteria, auditorium, and grounds.

Two of the graduate research assistants developed forms for recording the allocation, condition, and use of space in the school building as well as the condition of the exterior and use of outside grounds. The forms constitute unobtrusive measures which take evidence from the physical objects and the school building itself to infer how people use that space and what they care about.

A photographic record of the physical space was also attempted for each school. In particular we wanted to capture on film ways in which the schools praise their students' accomplishments in academics, art, sports, or other endeavors. While this

TABLE 2.1

Student Data Base by School and Grade for Each Measure of Data Collection

SCHOOL	School 1					School 2				
DATA/GRADE	Gr 6	Gr 7	Gr 8	Total	Rate[a]	Gr 6	Gr 7	Gr 8	Total	Rate[a]
Declared "FTE"[b]	288	236	216	740	100%	233	184	177	594	100%
Questionnaire[c]	244	203	184	631	85%	182	121	111	414	70%
MAT Reading[d]	213	175	168	556	75%	115	70	58	243	41%
MAT Math[d]	213	179	161	553	75%	114	69	58	241	41%
CRT Math[e]	155	162	135	452	61%	132	89	80	301	51%
TOPS[f]	206	158	132	496	67%	68	16	43	127	21%
FG[g] Reading	238	196	179	613	83%	82	66	65	213	36%
FG Math	239	197	178	614	83%	180	117	103	400	67%
FG English	239	197	179	615	83%	179	119	104	402	68%
FG Science	216	74	179	469	63%	180	119	105	404	68%
FG Soc. St..	239	197	179	615	83%	179	118	104	401	68%

[a] Rates are the number of usable returns as a percentage of the declared "FTE".

[b] The declared "FTE" is the number of full time equivalent students reportedly enrolled in the school, as determined by the schoool's seating capacity times the estimated percent utilization (Boston Public Schools *Profiles*, 1988-89).

[c] The School Climate Questionnaire was administered to students in March, 1989.

TABLE 2.1 (cont.)

Student Data Base by School and Grade for Each Measure of Data Collection

School 3					School 4					All Four Schools	
Gr 6	Gr 7	Gr 8	Total	Rate[a]	Gr 6	Gr 7	Gr 8	Total	Rate[a]	TOTAL	Rate[a]
94	99	79	272	100%	129	119	135	383	100%	1989	100%
79	80	60	219	81%	112	98	109	319	83%	1583	80%
56	65	48	169	62%	108	94	108	301	79%	1278	65%
55	66	47	168	62%	103	93	106	302	79%	1264	64%
51	54	31	136	50%	90	82	83	255	67%	1144	58%
26	27	42	95	35%	91	78	85	254	66%	972	49%
75	75	57	207	76%	86	35	20	141	37%	1175	59%
79	78	60	217	80%	111	97	108	316	83%	1548	78%
79	78	56	213	78%	47	97	108	316	83%	1484	75%
78	78	57	213	78%	93	80	77	250	65%	1337	67%
77	75	60	212	78%	14	4	16	34	9%	1263	63%

[d] Metropolitan Achievement Tests were administered in May, 1989.

[e] The Criterion Referenced Test in Mathematics was administered in June, 1989.

[f] The Test of Problem Solving was administered in April, 1989.

[g] FG denotes final grades which were assigned in June, 1989.

was also noted through assemblies, public notices and newsletters, the use of film helped us to document trophy cases, honor rolls, art exhibits, displays of students' work, and other statements celebrating what the students have achieved. Negative evidence also commanded the attention of the photographer, like misspelled graffiti.

Indicators from the Running Records of the Schools

In addition to the questionnaire responses, test scores, interviews, and observational data, general indicators of student health and well-being were also sought: rates of absenteeism, truancy, drug abuse, pregnancy, incident reports, and vandalism--on the negative side--but also positive outcomes as well: citations for exemplary behavior; volunteer work; student-initiated repair, clean-up or other improvement projects; participation in peer counseling; peer teaching; cross-age tutoring; or any school-based community service or school improvement project. Many of the negative indicators were available from the running records of the schools; some are published annually in the Boston Public Schools Annual Profiles. Indicators of the positive outcomes were built into the student and teacher questionnaire.

Summary

University/school collaboration in the conduct of this research was envisioned from the start. The thrust was to develop valid, practical indicators which can capture information about school climate which the research literature has demonstrated is relevant to student achievement. We sought results which could be used to inform educators and policy makers about school level practices which need to instituted or changed to promote student achievement.

The definition of student achievement was broadened to include not only performance on standardized tests of basic skills but also higher order thinking and problem solving, as well as prosocial behavior and community service.

Student and teacher questionnaires were developed in collaboration with educators in the schools. They were designed to yield comprehensive portraits of school climate, including the people and their attributes, the social system and its patterns of relationships and interactions, and the culture of the school, including the norms, values, and beliefs reflected in the behavior of its members. Teacher interviews and observation were used to complement and cross-reference the data obtained from the previous sources.

Teacher questionnaires were administered at a time when teachers were occupied with demands for system wide testing and other end of the year activities. Many teachers were worried about lay-offs, and morale was low, in some schools more than others. Against these odds, the rate of return for teacher questionnaires was approximately 50%. The student questionnaire was administered earlier, in March, 1989, with outstanding cooperation from the teachers and administrators in the schools. The return rate equalled the attendance rate for the days of administration, 80%. In fact, we had a larger response rate to the student questionnaire than the Boston Public School had for its grade and test files on the students in the sample.

The usable number of cases for all student instruments and measures are listed below:

School Climate Survey	1583
MAT-Reading	1279
MAT-Mathematics	1265
CRT-Mathematics	1145
Test of Problem Solving	972
Final Grade in Reading	1175
Final Grade in Math	1548
Final Grade in English	1484
Final Grade in Science	1337
Final Grade in Social Studies	1263

CHAPTER 3

THE SCHOOLS AND THE STUDENTS THEY SERVE

by Margaret W. Plum and Mary H. Shann

The four middle schools in the sample are described using information collected about each school on each of the following aspects: the buildings and their neighborhoods; resources available to the schools; the principals, the student populations, and their teachers; and finally, the school activities, both curricular and extracurricular. Data were gathered from city records, newspapers, interviews, and observations over three years. All of the schools were a part of the same school district, under the same superintendent, in the same school system, teaching the same grades and drawing from a similar pool of students and teachers. While they were similar in many respects, there were important differences too.

School 1

The Building and Its Neighborhood

Neighborhood 1 was "home" to over 46,000 people. It contained every typical Boston housing type from triple-deckers to suburban-style ranches and included one of Boston's largest public housing projects as well as the city's only working farm. Surrounded by the open spaces of Frederick Law Olmstead's "Emerald Necklace," Neighborhood 1 has become an integrated community of black, white, and Hispanic home-owners without the widespread abandonment that often accompanies a change in the racial and economic structure of a neighborhood.

The future of Neighborhood 1 would seem to be bright. According to data provided by the city's research bureau, growing numbers of new homebuyers have been attracted to the neighborhood by its abundance of two and three family homes. The income producing capacity of these multiple family structures were becoming more attractive in an era of perennially high housing costs. The new buyers were often childless, working couples or singles, drawn to the area by its quiet neighborhoods, low crime rate and accessibility. The completion of the new Orange Line rapid transit system in 1987 continued to increase the area's desirability, threatening to displace low-income and elderly residents who are unable to meet increasing housing costs (Boston Redevelopment Authority, 1988).

School 1, built in the 1930's, was located on a major city street of one of Boston's most diverse residential neighborhoods. On a plot plan, the school would have resembled a capital "I", the short bottom line of which was the front facing the street. The architecture of the facade of the three-story, orange brick building, divided by ornamental stone pilasters, was simple and belied its enormity. The school covered roughly the area of a city block. Over 700 students were served by 60 teachers, 4 administrators, and several support staff. Offices of the district superintendent and her staff were housed in the rear section of the building.

A Verbal Snapshot

Inside, School 1 hummed with human activity, echoing the hum of the street outside. On a gray Wednesday morning in February, a student activity board in the foyer proclaimed: "February is Black History Month." Another display pasted with photographs was entitled "New England Baptist Hospital, Our Business Partner." A bust of the school's namesake was centered at the top of a short series of steps in the pleasingly proportioned foyer. To the right of the steps was the office. Phones rang. Students and adults moveed rapidly in and out and behind the high reception counter. Papers and books were on every surface. It seemed to be chaos, yet there was an internal order not visible to the observer at first glance. A display of Valentines hung on the wall opposite a lush green hanging plant. The secretary welcomed a visitor with an offer of coffee and directions.

The main hall lined in tile and brick, ran along the front of the building, reverberating with sound. Colorful, creative activity boards enlivened the walls. The Honor Roll was represented by a pipecleaner marching band holding banners with homerooms and honored students. Another poster portrayed School 1 as a comfortable room with a large bas-relief paper fireplace. Above the mantle hung small pictures of the administrative staff. The teachers' names with homeroom numbers were listed beside the fireplace.

The classrooms were arranged with the sixth grade and the advance work classrooms located on the first floor. Above these room on the second floor, were the eighth grade rooms. Along the stem of the "I" were seventh graders, bilingual and regular students, in alternating classrooms for "integration." On the lower floor, below the first floor, were the cafeteria, resource rooms, Office of the Director of Instruction, and the special education classrooms. It was lunchtime, and students were eating and talking at small picnic-styled tables. The cafeteria was colorful and noisy, void of any acoustical ceiling. Two teacher monitors watched over the half-hour lunch periods.

Resources

Maintenance was a chronic challenge; there were occasional broken windows, torn screens, and scuffed walls. A student campaign to clean and paint walls has reduced graffiti from bathrooms and halls. Basic maintenance and repairs were provided by the Boston Public Schools; however, teachers and staff, with student help, often painted rooms and halls, and did minor repairs.

School 1 was supplied with the basic resources needed for teaching--books, paper, pencils, etc.--by the Boston Public School System. Other resources such as computers and office equipment were often obtained through one-time requests to granting agencies and specific businesses, or through on-going business partnerships. One teacher commented: "Resources are very limited. I don't even have enough books for my classes, so we only use the textbooks in class. Sometimes I think that funds get allocated or misallocated to those who push the hardest, but it shouldn't be that way. Also, I think that in-service workshops on proposal writing would be helpful to us. Why not train us to get the funds we need."

The principal, always alert to opportunities for acquiring additional resources, constantly tried to get the things, people or programs needed at the school. At School 1, she and the teachers assessed each prospective collaboration for its potential in contributing some needed resource to the school. Ours was no exception. At the first meeting of the University researchers and School 1 administrative team, a list of potential resources was presented by the school representatives: free courses at Boston University, use of the University's educational professionals in appropriate ways, and service by one of the University-based researchers on School 1's Action Team.

The administration actively solicited and was successful in developing many collaborative ventures. In a booklet prepared for the National Dropout Prevention Conference in April, 1989, School 1 boasted continuing collaborations with these organizations: Student Human Services Collaborative (since 1984); Boston Partners in Learning (1984); Sea Ventures (1984); Boston Ballet (1974); Good Neighbor Program (1984); Boston Area Health Education Collaborative (1984); Black Achievers (1985); Project Commitment (1985); Freedom from Chemical Dependency (1985); AIDS Action Committee (1986); SPECDA Drug Program (1986); Animal Rescue League (1985); Alianza Hispana (1985); Museum of Fine Arts (1985); Museum of Science (1974); Ecumenical Social Action Committee (1980); Massachusetts PreEngineering Program (1985); and Regional Laboratory Dropout Program (1987).

The Principal

School 1's principal was an energetic black woman who has been principal there for about 10 years. Asked if she had children, she replied, "Yes, I have 700 children," referring to the school's student population. The statement also said something about the level of her involvement at School 1 and her leadership style. She exhibited a very personal, hands-on management style. A firm believer in school-based management, she willingly delegated authority and tried to share decision-making with her staff, sometimes becoming impatient when the process moves too slowly.

Her day at the school began at 6:30 a.m., often not ending until 9:00 or 10:00 p.m. She instituted evening events for parents and insured regular parental attendance at least several of these meetings by using the events to hand out students' report cards directly to parents. She began plans for more community involvement and planned a series of dialogues on issues of common interest. Ever alert to grant possibilities, she maintained an impressive record of external funding. Her school had just received a $474,000, two-year grant from Office of Education for Dropout Prevention Program. The school was featured at the National Dropout Prevention Conference in San Diego in April, 1989.

The Students

Data were collected in 1989 from 627 of School 1's approximately 700 students. Reporting their race/ethnicity, 55.8% said they were Hispanic, 30.3% black, 7.2% white, 2.4% Asian, and 4.3% Native American or other. A wide range of ages, from 10 to 18 years, was reported by the students: less than 1% said the were 10 years old, 12.8% reported being 11 years old, 25% said 12, 30% said 13, 22.5% said 14, 8% said 15, 1% said 16, and less than 1% said they were 18.

School 1 had more male than female students, with 52.6% of the students reporting male and 46.3% checking female; 1.1% did not respond. Just over one-third of the students reported that they walk to school, suggesting they lived in the neighborhood; 29% reported they go by bus; 18% by "The T " (public transit), and 17% by car.

Student turnover affected about 200 students during the year, or about 28% of the student body. School 1 reported changes in student enrollment as follows: new BPS admissions --59; BPS transfers in -- 77; and BPS transfers out -- 88. Of these, 69 were discharged to other school systems, one dropped out, and 22 were unknown.

Students were assigned to various programs in the school by central administration: advanced work class for better sixth grade students; special education and Chapter 1 remedial classes for students reading below grade level; and bilingual classes for students for whom English is a second language. Most students in regular education are grouped by Metropolitan reading test scores.

If School 1 was typical of most middle schools in the system, it reflected the following practices:

> *For most students, reading scores determine their sixth grade placement; math scores have little bearing. Once placed in homeroom clusters, many Boston middle grades students remain with their homeroom classmates for the entire year. Regardless of variations in their mastery of different subjects, students typically attend all academic classes with their same classmates, although they may mix with others for gym, art, or music.*

> *Decisions about cluster assignments generally rest with the school staff and tend to be permanent; only one student we interviewed reported that she had been moved into a "higher" cluster and this occurred only after her mother persisted in seeking a change"* (Massachusetts Advocacy Center, 1990).

On the topic of student assignment, a teacher commented, "I would like to change the procedure for placing the kids. I just don't believe that the tests are accurate for placing students. I think the clusters (teacher/student units within the school) and the principal should decide." School 1 reported 432 in regular education, 217 in Bilingual program, 160 in Special Education, and 36 in Advanced Work program.

About the students, one teacher said, "I'm very interested in tapping into their potential and applying what they have in their work here. I believe that social studies taps into culture and can expand their horizons by reading about other people. But here we spend far too much time disciplining kids. I am impressed, however, with the racial balance of the school. We have Hispanics, blacks, and whites with only occasional little flare ups."

Another teacher said, "I enjoy, no, I love the kids. I love to see them learn and have success. But kids are starting to believe that eighth grade graduation is the only one they are going to get. They come all dressed up-- limousines, gowns. Every kid should achieve success and feel good about themselves, but they have to have twelfth grade as a target, not eighth grade."

"I enjoy working with middle school kids. They're half child and half adult. They can be charming and very pleasant, but working with them is both exciting and tiring. You have to learn to be parent, friend, and counsellor as well as teacher. We need to have expectations of them, so that they can have expectations of themselves. I'm tired of people making excuses for students. We can care, but we cannot give up on what they can become, despite the difficult obstacles they face," said a bilingual special needs teacher.

The Teachers

The 60 teachers in School 1 were assigned by grade and by speciality. They were organized in a new cluster system, meeting weekly to discuss their work, the students within their cluster, and to coordinate the activities. This common planning time was a new initiative of the principal. One teacher reported, "Clusters are a good idea. There are several teachers, five or six, for about 125 to 150 kids. It's a good way to discuss the kids and the progress they're making." The five clusters were: sixth grade, seventh grade bilingual, seventh grade, eighth grade, and advanced work. Special education was a separate group.

Of the 48% of the teachers responding, 58% reported teaching at School 1 for 5 years or less; 25% from 5 to 10 years and the remainder from 10 to 22 years. School 1 reported its faculty's racial-ethnic composition as 57% white, 23% Hispanic, and 20% black teachers. Of the respondents, 55.2% were male, 44.8% female. Fully two thirds reported having an advanced degree.

The School Schedule and Activities

The regular school day was divided into seven periods--five academic, one homeroom, and one reading period called DEAR--Drop Everything and Read (formerly called USSR before *glastnost*, or Uninterrupted, Sustained, Silent Reading). School 1 had only two bells; at 7:40 for homeroom and at 8:00 a.m. to announce the first class. Classes changed on the hour from then on and were approximately one hour long.

After school activities included basketball and a few clubs. School 1 had an annual Talent Show and Faculty/Student Basketball Game. Students helped with the evening supper meetings for parents and other special evening events. Enrichment field trips have included the Boston Ballet, the Gardner Museum and Thompson's Island.

One teacher's view of the school's activities was that "There's not enough room for extracurricular activities like band, cheerleading, and aerobics. Our kids don't know how to play with each other. They have never learned how to interact. They come to class and sit. They need to learn how to be together, dance, sing, act. They never have time in the school to do these things. Some classes have such activities but they are added in as if they were second rate. The day for a kid is dull, kids are bored to death. The kids aren't supposed to talk in class, or in the halls. They have NO RECESS. Its like a prison barracks. Middle schools need to change, and try more innovation. Changes could draw the kids in, and be the reason they come. We could save them." Another said, " Students need more afterschool activities. Too many students go back to empty homes. It's unfortunate that schools have to take on the parents' responsibilities, but the parents just aren't there for some of these kids."

SCHOOL 2

The Building and Its Neighborhood

School 2
City of Boston

carved high atop the central white stone facade, announced the building's name; but its massive presence needed no introduction. The large stone and brick school completely dominateed the narrow tree-lined residential street it inhabited. The white center sat sphinx-like with its great stone paws guarding the two tiers of steps rising up to the massive pairs of glass and iron grille double doors. This was the entrance to the school's main floor which was a full story above ground.

Stretching out from the center were two identical "L" shaped brick wings that spread for half a city block in either direction. Each wing was finished with a white stone facade and glass and grille doors, echoing the main entrance. These side entrances were used by the students coming by bus and on foot at the start of the day. Girls entered through the doors in one wing, boys through the other wing. They went directly to the cafeteria where they sat, segregated by sex, on either side of the large room until they were sent to homeroom. The lofty main entrance was used only by tardy students and visitors. Man-size verdigris torchieres at each entrance reinforced the building's sense of importance. No plantings softened its strong architectural lines.

The area in which School 2 was located was Boston's largest, most populous neighborhood. The area's population in 1980 was 65,264 or 11.6% of Boston's total population. Large groups of Irish, Italian, Greek and Jewish populations have been joined by Chinese, Blacks, and Hispanics in the district's residential areas. Neighborhood 2 has become one of the City's best integrated and most diverse neighborhoods. However, half its households contained single residents, and another quarter were composed of unrelated individuals. High concentrations of elderly, college students and working class families have combined to present a wide range of lifestyles, the majority childless (Boston Redevelopment Authority, 1988).

A Verbal Snapshot

Built in the 1930's, School 2 was located on a small, quiet street in a residential neighborhood. Across the street, modest, well-kept one- and two-two family houses faced the school like Lilliputians watching a silent giant. And the school was silent. The time was 9:30 a.m. on a Friday in February. No life could be seen at the windows, doors, in front of, or around the school. Inside, there were about 450 students, 42 teachers, 4 administrators, and a handful of support staff. Where was everyone?

Entering School 2 was mysterious. The great front doors were locked. There was a small doorbell to the right. It worked. A young woman appeared and admitted the visitor after proper identification was given. Inside the doors was a high vaulted foyer. One dusty activity board high on the side wall proclaimed "A Graduation Motto." Another was blank. A trophy case sat in the corner. To the right was what was once a reception room now furnished with an empty desk. Straight ahead, through more doors, a dark hall stretched from left to right. Ahead were doors to a large auditorium complete with stage and permanent seats. There was still no sign of life, no sound. The halls were lined with doors leading to the classrooms, storage areas, etc. Upstairs, the second floor copied the first with its long hall of doors, dark wood, and dun-colored tiled floor. The doors opened and the students pass silently single file along the hall walls. Teachers facilitated the orderly passage. No talking, no socializing. Order was the order of the day.

General maintenance was provided by central administration. School 2 appeared to be clean and in relatively good repair. One teacher reported, "There is no vandalism, no graffiti here, and it's safe"; however, she complained, with other teachers, about the lack of paint and poor general maintenance. They blamed lack of funds available to the system for this situation.

Resources

Like School 1, this school was supplied with basic teaching resources by the Boston Public School System but there always seemed to be shortages, as in the other schools. Echoing many teachers, a bilingual teacher reported a shortage of books and workbooks; she also wished they could hire more front office staff who spoke Spanish, who could talk to parents and facilitate educational processes. The administration here actively solicited resources and funding from the business community and local institutions as well as government agencies.

The Principal

School 2's principal, a white man in his late fifties, whose entire professional career was spent in the Boston Public Schools, effected a highly democratic leadership style, seeming to rely heavily on teachers, parents, and central administration for guidance and approval. He had succeeded a series of principals who served briefly after the longer tenure of a strong, dynamic leader. Although this was his second year as principal of School 2, he appeared to be cautious and careful. His manner was friendly and accommodating.

One teacher reported, "In general, I don't think the administration is doing anything different from the administration of other middle schools. It's just that we are lucky to have such responsive and responsible students. These kids are really very well behaved for children their age. Safety is never a problem here. The administration, however, should be commended on getting teachers who care and on creating an environment in which we feel like we can teach. The administration is very supportive of teachers. They are understanding of personal problems which sometimes come up. "

Order and structure in the school were a top priority of the principal and his assistant administrators. "They've done a great job at providing structure in the school.

I think the kids know what is expected from them. Although teachers have hall duty during the changing of classes, students are almost always orderly. The staircases are marked with up and down signs. The fire drills are never a problem because the principal talks to the entire school about fire drills at the beginning of the year in the cafeteria," a teacher said.

The Students

Of School 2's approximately 420 students, 397 provided usable responses to our questionnaire. Regarding their race/ethnicity, 24.4% said they were Asian, 25.7% black, 10.8% white, 33.2% Hispanic, and 5.8% "other." These data showed a more racially balanced student body than School 1. The age range, from 10 to 16 years of age, was similar to that for School 1. Students in School 2 reported the following ages: less than 1% said they were 10 years old;13% were 11; 24% said 12; 30% 13; 20% said 14; 10% 15, and 1.5% said 16 years old. Like School 1, School 2 had a larger male population; 59.2% percent of the students respondents reported they were male; 40.8% female.

The majority of students at School 2, 58.2%, reported that they came to school by bus; 16.2% came on "The T" and 9.2% came by car. Unlike School 1, 15.9% walk to school, suggesting the great majority of the students live outside walking distance of the school and outside the neighborhood.

About 33% of the student body changed during the year. Boston Public School Profiles for 1989 recorded 39 new BPS admissions; 55 BPS transfers in; and 54 BPS transfers out . Regarding student losses it was reported that 53 left to go to other school systems, six dropped out, and five were unknown.

As was the case for School 1, School 2 officials reported that students were assigned to bilingual education, special education, and advanced work classes by the central administration. Students in regular education were assigned to classrooms based on their MAT reading scores. As reported by students, their enrollment by program was: 18.9% regular education; 23.9% bilingual education; 35.0% special education including Chapter 1; 10.3% advanced work class; and 11.8% combination of bilingual and special education programs.

When asked what do you like best about this school, one teacher said, " The students here are great. They're just likeable kids to work with. The kids really respect their teachers. They respect each other. There's a real mix of kids here -- Asian, white, black, Hispanic. Once in a while, you might catch a racial slur or two, but I always take the kid aside and talk to him. Actually, there seem to be more problems within the racial groups than across race lines." Another teacher said, "The kids! I love them."

The Teachers

The 42 teachers at School 2 were newly organized in clusters, but "not pure clusters," meaning some teachers are members of one cluster and teach some students in another cluster. The clusters were: bilingual--Spanish; bilingual--Vietnamese, sixth grade, seventh grade, eighth grade, and two "learning adaptive" clusters. A teacher reported, "The cluster system meets weekly with administrators, but is teacher-led. At the cluster meetings, the needs of the kids, evaluation, etc. are discussed. This is good communication and very important." This weekly meeting was the teachers' only common planning time.

Only 33% of the teachers in School 2 provided usable questionnaires. An additional 15% responded to an old form from an early pilot test which they had received from a school representative. Of those responding, 64% reported they had been teaching at School 2 for 5 years or less. The remaining ranged from 5 to 25 years. The race-ethnic composition of the faculty of School 2 was: 65.8% White, 14.6% Black, 10% Asian, and 10% Hispanic. The respondents reported they were 92.9% female and 7.1% male, unlike School 1, which had a more even gender distribution and a more representative rate of return. At School 2, 64.3% of the teachers held advanced degrees.

Commenting about her peers, one teacher reported: "The teachers are here to teach. As far as I know, they're good at what they do. I believe 90% of the teachers like what they do. Although I've been here for four years, I haven't found the time to socialize with other teachers. We are professional with each other, but in a respectful, distant manner. I don't want you to get the idea that the teachers here are a cold, achievement-oriented bunch. We are often too busy working on bettering our materials for our kids. For instance, I spend many of my lunch periods here in my room planning lessons or correcting student work. We, however meet weekly in clusters. I find this time very helpful and productive."

School Schedule and Activities

The regular school day was divided into 8 periods with no flexibility of scheduling. They were: 5 academic, 2 electives, and 1 homeroom including "USSR" (uninterrupted, sustained, silent reading). At least one teacher would like to see longer class periods. "I cannot conduct a science class in 45 minutes. Two periods two or three times a week would be better than having one period each day." School began at 7:40 and ended at 1:40.

The afterschool programs included: help in reading, computer club, basketball, and mock trials. "I'd like to see more afterschool programs. Right now, the afterschool program consists of informal activities and ends as soon as the late bus arrives to take the kids home," said a teacher. A late bus came at 2:30 but was "not predictable."

SCHOOL 3

The Building and Its Neighborhood

Neighborhood 3, in the geographic center of Boston, was one of the city's most historically significant areas. Once an affluent suburban area, the neighborhood grew more densely populated around the turn of the century when streetcar service was extended from the downtown. The area has experienced extensive abandonment and disinvestment in both its commercial and residential sections. As the incomes of successive waves of new residents decreased, maintaining businesses and the existing housing stock became increasingly difficult.

The city, state and federal governments have, in the past twenty-five years, invested substantial funds both into the Washington Park Urban Renewal Project as well as the surrounding area. However, the proliferating problems faced by the community have far outweighed these public efforts. Neighborhood 3 is now experiencing a new immigration of young black professionals who are acquiring many of the underutilized and abandoned buildings in the area. "Their initiatives, unlike those in the past, are complementing efforts on the part of existing residents, as well as renewing the interest of private investors in the area. However, the low incomes and limited job skills of many of the current residents pose major handicaps to their full participation in Roxbury's revitalization" (Boston Redevelopment Authority, 1988).

One data collector said, "Getting to "School 3' is harder than getting data about 'School 3'." Despite following the directions precisely, the visitor was sure he had gone wrong. The journey started with a drive down a six-lane, major city artery, then took an abrupt left turn into a maze of narrow streets, checkered with inhabited and boarded-up buildings, interspersed with vacant, trash-filled lots. The drive continued onto a short leg of a major city street, then right onto a four-lane divided highway that went two blocks and stopped. To the left of this strange, truncated boulevard (Martin Luther King Boulevard built in the 1960's), was a large abandoned field house and an overgrown park--reminders of promises not kept. School 3 sat on a hill on the far side of this park.

A Verbal Snapshot

The most prominent feature of the two-story red brick school was its large red chimney. Cars came and went in the small parking lot. Two police cars stopped and the officers went into the building. A brown sedan blocked the entrance walk. A woman sat in the passenger seat, staring out vacantly. On the entrance steps, a half-eaten sandwich curled in the pale winter sun. The original entrance to the school was changed to a side door, so that entering students would pass by the office on their way to class. By redesign, then, there was no foyer, no large space for any unmonitored gathering. The students were funnelled down into a long narrow hall, decorated by a brightly colored mural painted by the students. To the left of the front door was a large auditorium. Wooden chairs, attached in groups of five, form irregular rows facing the stage. The day featured a "reward movie," *Roger Rabbit*. Students filed in to find seats in the already darkened auditorium. The din became a roar as the sounds of the students' talking in even conversational tones bounce off the hard surfaces.

To the right of the front door was the main office, the principal's office, and the office of the Director of Instruction. Student activity boards announced upcoming events and a poster entitled "We are Family" identified the students and their homerooms. Through a door, a small sign said: "Enjoy life, this is not a dress rehearsal". The first floor classrooms were devoted to the "7th/8th graders", who were overage seventh graders and most eighth graders. The second floor housed the "6th/7th graders" who were all sixth graders and most of the seventh graders. The lab school, a school-within-a-school, was on the second floor, over the office, separated from the other students. The building, like the surrounding neighborhood, was rambling, with lots of ups and downs and dead ends. Staircases descended into blank walls. Halls funnelled into dead ends. Rooms sat off by themselves.

School 3 was built in 1911. Its general physical condition in 1989 was very rundown. The impression was one of uneven attention. A teacher described maintenance as a "patchwork." She said, "Recently, asbestos was removed for the school. We had been told this had been taken care of years ago." In one classroom, the blackboard and part of the plaster wall had fallen, exposing the lath behind. Another teacher said, "The building is in terrible shape. The teachers' room is a disgrace. I want to know which room I am going to have next year so I can paint it myself." School 3 was not unlike the streets traveled to get there; a new window next to a shattered blackboard, mirroring the neighborhood of abandoned buildings next to occupied homes. Despair and hope, with degrees of each, lived side by side at School 3 and in its neighborhood.

Resources

Like Schools 1 and 2, School 3 was supplied by the central administration and, like the other schools, it had to be resourceful in getting additional school supplies, equipment, and building supplies from businesses and other agencies. School 3 showed evidence of some repairs in progress. Huge windows were being replaced; the new ones were unmistakable with their rust protected metal frames, but here and there old ones with chipped yellow paint on cracked wooden fames seemed to have been overlooked. They would all be replaced eventually, but through two different sources. Most were supplied by Massachusetts Port Authority. But the agency was responsible only for classrooms, because of the noise created by airplanes going and coming at Logan Airport interfered with *teaching* . The other windows, for the offices and corridors, where no *teaching* took place, had to be supplied by the central administration.

The Principals

School 3 had three principals during the year and a half of data collection for the study. In fact, the turnovers took place in the space of six months.

Principal 1

The first principal was a former Marine, who patrolled the halls all day, keeping order and picking up papers. He had not had a vacation in two years. He said: "School 3 has replaced home. It is a pleasanter place than home for many of the students." The principal saw his leadership style as benevolently patriarchal and authoritarian. His patriarchal leadership style was reflected in his priorities for School 3 which he based on his assessment of his students' needs; first -- social, second -- medical, and third -- educational. "School is taking over jobs formerly done by the home, churches, social organizations, churches, and governmental agencies." He saw his job as providing a safe atmosphere, counseling parents, supporting teachers, and being a "father" to students.

On Principal 1's leadership, one teacher reported, "Discipline is selective, erratic, and almost nonexistent. One student started a fire for which the penalty is automatic suspension, but the principal thinks he is a good kid so he didn't punish him". Another said, "Disrespect for the principal is almost total. There is no follow-through and no back up for teachers, and the kids know it." Another reported, "I would like consistency from administration in treating the teachers and the kids. There is inconsistent punishment. A broken rule which may result in suspension with one student may not for another." Another wanted "a stricter principal who follows through." Another said,"I'm leaving! Until the principal and administration changes in this school, I see very little hope for things improving."

Principal 1 was notified of his discharge approximately 10 days before the opening of school in September of 1988.

Principal 2

When Principal 2 became principal of School 3 in September, 1988, he wanted nothing to get in the way of his mission to turn around the beleaguered school. Describing the school as a "hellhole," Principal 2 set out to remove drug users from the nearby park, convert weary parents into education boosters, and lobby school bureaucrats to pay for building repairs. But in a quick turn of events soon after his arrival, Principal 2 was defending himself against charges that he has become the obstacle to rebuilding what is one of the city's most neglected schools.

> *In his brief, four-month tenure, (Principal 2) has generated a controversy that has split the (School 3) faculty. Last night, Superintendent Laval S. Wilson held an emergency meeting with top administrators about the school..* (The Boston Globe, January 13,1989).

Principal 2, a black man, had joined the Boston Public Schools in 1974 as a teacher and later became an administrator, serving as an assistant headmaster in one of the system's more highly regarded high schools. His leadership style was authoritarian. "I was appointed by Wilson as a get-tough administrator who would bring about reforms. Teachers who criticize me either do not want to put in a full day's work or they remain loyal to my predecessor" (Principal 1), as quoted by *The Boston Globe* January 13, 1989). He was perceived by many of his staff as "leading through intimidation and harassment, not cooperation and collegiality".

An avid reader of the school effectiveness literature, Principal 2 arrived at School 3 a week before the start of school with his fully developed 5-year plan to reform the school. A plan for change had already been initiated by Principal 1 in collaboration with the Director of Instruction and the staff. Ignoring the existing plan, Principal 2 started his new plan which featured creating a caring environment, making some cosmetic physical changes ("these are symbolic"), creating an active parent council, and providing professional development for the staff. He wanted to bond --

bond teachers to students, bond parents to the school and, most importantly, bond teachers to him.

"Most of the staff do not share my hopes and plans for (School 3) and are resisting change," he said. Ironically, most of the features of his new plan were included in the existing plan. By January, he had created a hostile atmosphere, made few physical improvements, alienated many parents, and divided the staff. He was replaced by Principal 3 on January 27, 1989.

Principal 3

The new principal of School 3 was a black woman who had served most recently as an assistant principal at one of the most highly regarded middle schools in the system under a principal whom she regarded as her mentor, who was frequently cited for his school's outstanding achievements. Her immediate goals were to rebuild staff cohesion, restore order, reassure parents, and focus on the educational needs of the students in School 3 for second half of the school year. She exhibited a straightforward, open manner. Her decisions demonstrated a firm, yet cautious leadership style. She appeared to be willing to share leadership responsibilities with other administration members and staff. Her actions demonstrated a more relaxed, yet conscientious and thorough, personal style. A teacher said, " With the new principal, there is a new tone. She's more laid back. It's a lot more peaceful."

The Students

Of the approximately 250 students in School 3, 210 provided usable returns to the questionnaire. Identifying themselves by race/ethnicity, 67.1% said they were black; 18.6% Hispanic; 6.2% white; 2.9% Asian, and 5.2% "other." Its enrollment two-thirds black, School 3 reflected the greatest racial imbalance of the four schools.

Students reported their ages to range from 11 to 16 as follows: 8% were 11 years old; 26% were 12 years old; 32% 13 years old; 20% 14 years old; 10% 15 years old, and 3% 16 years old. Like Schools 1 and 2, School 3 had a larger male population--56.6% male to 43.4% female. Like School 1, the majority of the students, 59.4%, walked to school, suggesting that most of students who attend School 3 live in the neighborhood; 32.9% took the bus; 4.1% arrived by car, and 3.7% took "The T."

About 30% of the student population changed during the year. BPS data showed the following figures for School 3: 14 new BPS admissions; 34 BPS transfers in; and 41 BPS transfers out, including 33 to other school systems, 0 drop outs,and 8 unknown.

Unlike Schools 1 and 2, School 3 did not have a bilingual program or advanced work classes. Students were assigned to the schools lab-school-within-a-school by Central Administration. Asked if they were assigned to any special programs, 33% of the students at School 3 said no, while 65.5% reported they had some form of special or remedial program.

Like those in Schools 1 and 2 , when asked what do you like about teaching in this school, one teacher said, "The kids. I live in the neighborhood and I'm involved with the kids in and out of class." Unlike those in Schools 1 and 2, another teacher said, "Kids roam the halls all day. Fighting is frequent and often ignored. Running in the halls is continuous." When asked do you go out into the halls, he said, " They don't bother me, I don't bother them."

Another teacher reported an increase of disturbed students in regular classes, citing a state reduction of quotas of students eligible for special education. (In fact this was not a policy of the city or the state.) She pointed out a student who had been shot in a local park the week before. She said that some students were walking around school with bags possibly with concealed weapons, in violation of school rules.

The Teachers

"There is no cluster system, no department head, no team, no way to share materials, planning time, or program," a teacher reported. Unlike Schools 1 and 2 which were just getting started with a cluster system, the 28 teachers at School 3 were not yet organized in teams of any sort, and there was no common planning time. At this writing, a year after the majority of data collection took place, the teachers were being organized into two clusters. One joined teachers of sixth and most seventh grade classes; the other included teachers of overage seventh graders and all eighth grade classes. Wit the arrival of Principal 3, the teachers began to enjoy common planning time.

The teachers were assigned to clusters by the administration according to the type of teaching certification they possessed; teachers of sixth and seventh grades needed an elementary certification, and teachers of seventh and eighth grades needed a certification in the subjects taught. Of the 21 teachers (about 80%) responding, 81% reported teaching in School 3 from 1 to 5 years; 33% were first year teachers. The remainder had taught in School 3 from 5 to 26 years.

A 10-year veteran teacher with four years at School 3 observed, "I don't go up to the teachers' room. It's very bad with everyone sitting around talking about how bad everything is. The teacher morale is bad." A first year teacher at School 3, with 5 years experience, said, "The teachers here are a good group. They're friendly and helpful with some exceptions." She rarely interacted with other teachers. A special education teacher, she and her students had all classes and ate breakfast and lunch together in her room. Another said," I would say that 26 out of 28 teachers in this school are discontent. This year four teachers have applied for transfers, and three have quit. Teachers try hard to band together but are afraid. Even the ones who work for the principal (Principal 1) admit to being afraid of him. When it comes time to face him, they back down."

According to a news reporter who interviewed teachers in School 3:

> *Staff morale at School 3 has been low for years. About half of its 30 teachers sought and received transfers to other schools last year. The situation has not improved under (Principal 2), according to some administrators, teachers, and parents. They said Principal 2 has a hot temper and has intimidated staff. He has tried to lead through intimidation and harassment, not cooperation and collegiality* (Boston Glove, January 13, 1989).

School 3 reported the racial-ethnic composition of its faculty as 68% White and 32% Black. There were more female teachers than male teachers in School 3, as was true for Schools 2 and 4 and unlike School 1. Of the respondents, 39.1% reported being male and 60.9% reported female. At School 3, 57.1% said they had advanced degrees.

School Schedule and Activities

The school day was divided into eight periods; seven 45 minute periods plus homeroom, including "USSR," at the end of the day. The day started at 7:40 a.m. and ended at 1:40 p.m., following the same schedule as Schools 1 and 2. There was no flexibility in scheduling. The teachers complained loudly: "Administrators interrupt classes constantly. They take the well behaved girls out to run errands. Other teachers wander in. Administrators wander in. It is not related to observation but simply communicates the idea that nothing important is going on." Another said, "Kids frequently interrupt classes with messages sent from the administration. They don't think class time is important."

Afterschool programs included: remedial programs such as study skills and tutoring; clubs, student council, and the school newspaper; and sports, including basketball, track, and softball. The physical education teacher said, "There is little attention given to the P.E. program at the school, with no standards for repairs, hygiene, etc. P.E. is 'pushed to the back' on agendas, and there is a need for at least one other part-time person to share the burden. The school needs a strong P.E./sports program, with the accompanying mascots, rallies, etc. to boost morale amongst both students and faculty. P.E. is the morale of the school."

SCHOOL 4

The Building and Its Neighborhood

A school booklet pronounced School 4: "A building that has four walls, with tomorrow inside." School 4 was a large brick square, composed of a 3-story, rectangular main building, constructed circa 1890, joined to a similar sized, 2-story rectangular annex built behind the main building in 1939 by the Public Works

Administration of the U.S. government. The School sat solidly and stolidly on a point of land created by the intersection of a large city thoroughfare crossed diagonally by a narrow one-way street. The school lay in the shadow of a very large city high school, a fortress-like facility of enormous proportions, further exaggerated by its site, 100 or more feet above the ground level of School 4. Another block away was a major city hospital surrounded by satellite medical facilities. School 4 resided in the same general residential neighborhood as School 2.

A Verbal Snapshot

The monotony of the brick facade of the main building was broken by simple, classic stone trim over the windows. The main entrance to the school was through one of three large, green, double doors which served the main building. The center door was unlocked. In the main foyer, the visitor noticed the walls at once. They were covered with student projects. Brightly colored, construction-paper maps and flags, a story in pictures, a large painted mural of 1890 skaters, and a "Health and Fitness" display all bespoke of hours of research, learning and labor. The works were hung at student eye level for easy viewing. Also, the painting treatment of the foyer walls--pale green above and bright yellow below--lowered the high ceiling and created a people-sized space. The worn wooden floors were clean despite the ankle-deep winter slush outside.

A teacher seated at a desk outside the office asked the visitor to sign a visitors' book. Two green park benches faced each other in the middle of the foyer. Three boys sat talking in soft tones, waiting for the assistant principal. One boy looked up and said: "I'm in trouble". They are called in turn to in the office, and then disappear into the building. A group of students passed by talking in a friendly way. An inviting sense of order prevails.

Opposite the front doors was the assembly hall. It was a large auditorium with permanent seats. On the stage were two large yellow backdrops painted with clowns and balloons, suggesting a carnival or fair. Hallways on either side of the assembly hall led to the first floor annex which housed one group of sixth grades. The main building's first floor housed eighth grade classrooms. Through one classroom door a teacher could be seen giving an animated science lesson.

The second floor of the main building was occupied by computer facilities, the library, and the office of the Director of Instruction. Some special education classes were held on this and the first floor. The second floor annex housed the second sixth grade cluster. Seventh grade classrooms were assigned to the third floor. The school had no cafeteria facilities, but room in the basement had been made into a lunchroom; it is clean and well lit with windows to the ground level. Students returned to their classes from lunch in relaxed single file.

While School 4 was a very old, well-worn building, continually in need of repair, the atmosphere was alive, and the students and teachers seem energetic and fresh. As in the other three schools, maintenance was a low priority item with Central Administration and a chronic problem to School 4. The principal showed several broken windows which had been open to the elements during the fall and winter. One teacher said, "Paint falling from the ceiling is not conducive to learning."

"I'd like the school to be a prettier place to come to. Students and teachers alike have put a great deal of time into enhancing the appearance of the school. The ceilings are peeling, the window shades are torn or missing. Students have lots of artwork put up in the halls. And teachers took time last year to paint the staircases," said a seventh grade teacher, with 11 years experience at School 4.

Resources

Its publicity brochure proclaimed: "School 4, through the energy of (Principal 1), has developed an 'unofficial' theme of 'technology' because it has 140 computers, the largest number housed by any public school in Boston." Like their counterparts in the other 3 schools, the two principals who served School 4 during the course of the study were alert to sources of supplies and equipment both in the public and private sectors. Principal 1 was successful in getting enough computers to make his school as specially designated site for studying microcomputers in education. (See the description of Principal 1 below). But some teachers felt that emphasis on computer was overdone. Regarding other learning resources, one teacher reported, "Supplies are always available, and Xerox is never used up." Only a few complained of limitations on textbooks. Those who did said there weren't enough to go around, so they couldn't be used for homework.

The Principals

There were two principals at School 4 during the 1 and one-half of data collection for the study.

Principal 1

The "Computer" Principal became principal at School 4 in 1978. He said he decided to bring computers to the school in 1980 as a way to draw resources into the school. "I look at technology as an investment," he said. "I came to the conclusion that in order to get donations from companies we had to demonstrate that we are the technological leaders in the system." In 1981, armed with $30,000 in School Department funds, Principal 1 had two small computer labs built. Since then, he has convinced several computer companies to donate machines. And, in 1983, according to the School Booklet, IBM designated School 4 as its model computer school in the state."

The first principal was a strong leader, whose focus was education and student achievement. An Asian, with 17 years in the Boston Public Schools and principal at School 4 for 8 years, he assumed leadership after a succession of 4 principals in 4 years. His abrupt, no frills style was illustrated in his opening speech each September to incoming teachers. It consisted of 3 commands; "One, you have to like the kids. If not, you don't belong here. Two, you have to know your subject. If not, you don't belong here. Three, you have to begin teaching 5 minutes before the kids come into your room." In another example of his style, he said to his librarian who asked for his advice, "I hired you as a librarian. Now be a librarian."

Like the first principal at School 3, this principal "is always in the halls", but this principal seemed to be doing more than looking for waste paper. "He is everywhere. He comes early and stays late. He is accessible. He tells you what he expects and treats students and teachers fairly and consistently," said one teacher. His reported fair and consistent manner also differed from the perception of School 3's principal who was seen as having favorites among students and teachers.

Some teachers saw his leadership style as autocratic and inflexible. "The principal sometimes has tunnel vision about new ideas. If you have a new idea you have to be persistent. Some teachers give up." "He is decisive and firm and can be intractable." On the other hand, a teacher reported, "He's always willing to listen to you. If your idea is better that his, he'll change."

The principal was pictured by several teachers as a very task-oriented leader. "Teachers are here to educate. He is interested in teachers only as related to their job performance, not socially." He exhibited few group maintenance skills suggesting either staff maintenance is a low priority, or he lacked these skills. Any social activities were initiated and performed by staff, yet he controlled the composition of the groups by virtue of his selection of the unit (cluster) members.

"He can seem intimidating. I was at first," said a teacher of four years at School 4. "When he interviewed me, he took a knife out of his drawer and said he'd taken it off a kid that day," said another teacher indicating she thought it was a dramatic ploy to test her ability to work with inner city students. She thought he intimidated teachers in order to weed them out early. "If they can't stand his pressure, then they won't be able to stand the pressure from the kids," she said.

Another teacher said, "He gives real supervision. The first week he was in my class eight times, but he never interrupts. He gets rid of incompetents. He notices everything; how you talk to the kids in the hall, for example." You may not like all (the principal's) decisions but he is a creative genius, and fosters creativity in others. He runs the place well. "

Principal 1 had decided to move on at the end of the 1988 school year. He became Superintendent of High Schools for Boston Public Schools.

Principal 2

Unlike the transition of principals in School 3, the change of leadership at School 4 was expected and orderly. Principal 1 had decided to leave, and Principal 2, chosen in a timely manner, was expected by the students and staff in the Fall of 1988. An Hispanic man, Principal 2 had served in the Boston Public School system for 10 years in varying teaching and administrative capacities. His manner and leadership style were more personable and less intense than that of his predecessor. His plans for changes from Principal 1 included: (1) using the computer as a remedial tool as well as a tool for applications, and (2) initiating the return of arts and physical education programs.

Students

Of the approximately 400 students enrolled at School 4 in 1989, 317 responded to the student questionnaire. The described their race/ethnicity as follows: 26.8% Asians; 36% black; 12.6% white; 18.6% Hispanic; and 6% "other." Students reported their ages as follows: 10% said 11 years old; 27% said 12; 29% said 13; 23% said 14; 8% said 15; 1% said 16; and less than 1% said 18. This represented a similar age range reported by the other schools. Unlike the other three schools, School 4 has a larger female population, 52% female to 48% male.

Like School 2 , the largest percentage of students (43.5%) at School 4 reported that they come by school bus; 22.2% said they come by "The T;" 24.1% said they walked to school, and 9.9% said they arrive by car.

School 4 had a larger turnover rate, at 35%, than the other schools. Changes in school population during the year were reported as follows: new BPS admissions - 28; BPS transfers in - 64; and BPS transfers out - 66. Student losses included 72 to other school systems, 9 dropouts, and 14 unknown.

Students were assigned to special education programs in School 4 by Central Administration, as was the case for the other 3 schools. There were no bilingual programs at School 4 and no advanced work classes, only regular and special education. Almost two-thirds (66.5%) of the students in School 4 reported that they were enroled in some form of special or remedial program, including Chapter i programs, and 30% reported that they attended only regular programs.

When asked about the students, a sixth grade teacher of 17 years experience said, "The kids are racially diverse; Asian, black, Hispanic, project kids from (Neighborhood 2). You either love or hate this age group. I love it." The librarian said: "We have the same student population as other schools. School 4 students come from the worst projects in Boston and yet look at them." She waved her hand to show off the clearly engaged students working. She thought she knew all the students at

School 4. "If you lined them up outside the building, I might not be able to identify them all by name, but I know them. That was what was so upsetting about having my wallet stolen by one of 'my students'. I'll have to be more careful."

"The students are the reason why I'm here. I tell my students, 'You don't work for me. I work for you.' This school is known for achieving. But their are some kids here who are not achievers in the same way. They need to be given other options. The goal in my class is to inspire. For example, we do a lot of writing in this class. But some students are put off from writing. My first job is to get them interested; so sometimes, instead of putting a pencil and a notebook in front of a student, I put a video camera in his hand. He suddenly begins to see the world differently. The subject is no longer dull. But you don't stop there. That's only the first step," said a teacher of 11 years' experience at School 4 and the only black male teacher.

"The students here are wonderful to work with. I think the students' attitude and sense of pride have a lot to do with what (Principal 1) has done with this school. Here the teachers are expected to teach, and the students are expected to learn. This is their job," said a reading teacher.

The Teachers

"There are good teachers here. Principal 1 has done a great job at attracting good teachers," said a 20-year veteran teacher, completing her first year teacher at School 4. The 45 teachers at School 4 were organized in units (now called clusters); membership was determined by the principal. At this writing, the teachers were organized in five clusters: 1) sixth grade elementary team teaching approach; 2) sixth grade middle school team teaching approach; 3) seventh grade cluster; 4) eighth grade cluster, and 5) bilingual cluster (although there was no officially designated bilingual program at School 4 during 1989). One teacher said, "There is integrity in each cluster. Teacher input is great. Not all teachers in the cluster are alike, but the contrasting styles and values are good. It is like a mini school within the school. Students stay together so they move in a cluster. Also, you get kids you worked with the previous year. It helps especially at the beginning of the year when you have to spend so much time getting to know the kids. You already know their strengths and what they need to work on. They know you and your expectations."

"There are weekly cluster meeting. It means both the administration has tight control and there is individual attention paid to the students. There are frequent discussions of students, so they don't get lost," he added. Unit members had the same free period. One computer teacher said, "I work mostly with my unit but I have initiated ways I can work with other teachers in the use of the computer. For example, with the English teachers and their projects--the work processor; with the Social Studies teachers and their projects--the graphics functions."

"The cluster system works for the most part, but it can also be very isolating. As a computer teacher, I don't necessarily get to work with other computer teachers. I have to seek out other computer teachers on my own time." "There must be a way to make the cluster system more flexible," said another. Teachers were assigned to classrooms by grade, teaching style, and language.

Of the teachers in School 4, 58% responded to our questionnaire; 30.6% reported they had been teaching at School 4 for five years or less; this was a significantly lower percentage than at the other 3 schools, reporting 58%, 64% and 81% respectively. Among the rest, 19.1% reported teaching 6-10 years; 15.3%, 11-15 years, and 19% more than 15 years. The racial/ethnic composition of School 4 was: 71% White, 13% Black, 13% Hispanic and 3% Asian. The teachers responding were 42.3% male and 57.7% female. At School 4, 68.9% reported holding advanced degrees.

School Schedule and Activities

The regular school day was divided into 8 periods; 7 periods plus a 10-minute "USSR." A 6-minute homeroom period started the day. Flexibility in scheduling was accommodated within clusters for testing, projects, fieldtrips, etc. School began at 8:32, unlike the other schools which commenced at 7:40. School ended at 2:30 unlike the other schools which ended at 1:40, but all four schools had 6-hour days. "Students are dismissed after the arrival of at least four full-sized buses. Homeroom teachers will accompany their students all the way to the side doors for dismissal," read a bell schedule notice.

Summary and Discussion

The sample sites for the research were four middle schools located in one district of the Boston Public Schools which had been paired officially with Boston University for 15 years, as part of a court ordered desegregation plan. While the neighborhoods were diverse, the students who attended the schools were more homogeneous economically, if not ethnically and racially, than their neighborhoods. This was the case because oftentimes families with financial discretion did not send their children to the public schools. The pattern was especially true for parents of females, who , if they had marginal financial discretion, would choose to send their sons, but not their daughters, to these schools. One of the first and most startling findings about the four schools in the sample was the overall sex ratio: almost 55% to 45%, males to females.

The one relatively more affluent neighborhood which was the setting for Schools 2 and 4 in the sample included a preponderance of childless households, including elderly people and young professionals. College and graduate students and unrelated people living together to share expenses were attracted to these neighborhoods, and inflate the median household income. Middle school students were bussed to Schools 2 and 4 in larger numbers than to the other two schools, which drew more heavily form their own neighborhoods. The neighborhood for School 3 would be considered the most disadvantaged.

Figures reported in City of Boston's *Neighborhood Profiles* (1988) show the following differences based on 1984 data:

Neighborhood	Median Household Income	Unemployment Rate	Percent in Poverty
School 1	$16,950	11%	31%
Schools 2 & 4	$22,400	3%	17%
School 3	$13,000	14%	31%
Citywide	$19,250	6%	21%

The administration of student questionnaires in the four schools was extremely successful in achieving a return rate which was equal to the attendance rate, or about 85% of the schools' enrollments, thanks in large measure to the high degree of cooperation offered by the teachers and administrators in the schools. Student data reported in the study was corroborated by data available from the Boston Public Schools. The figures on students presented here are those taken from self reports.

Most of the students in the sample schools were minority group members. Of the major ethnic groups, Schools 2 and 4 presented a more balanced student population, while School 1 with its Hispanic bilingual program had a majority of Hispanics, while School 3 in a predominantly black neighborhood had an enrollment which was more than two-thirds black. Their racial/ethnic distributions were as follows:

Race/Ethnicity	Asian	Black	White	Hispanic	Other
School 1	2.4%	30.3%	7.2%	55.8%	4.3%
School 2	24.4%	25.7%	10.8%	33.2%	5.8%
School 3	2.9%	67.1%	6.2%	18.6%	5.2%
School 4	26.8%	36.0%	12.6%	18.6%	6.0%

The vast majority of students at the four schools reported their ages to be between 12 and 14, in March of their school year. Only 12% were younger than 12 years of age, and 10.5% were older than 14. School 4 was significantly different from the other three schools in enrolling a majority of girls. The sex ratios taken from student questionnaires in the four schools were as follows:

Sex Ratio	Male	Female
School 1	53.1%	46.9%
School 2	59.2%	40.8%
School 3	56.6%	43.3%
School 4	48.0%	52.0%

Building, Size, and Scheduling

All of the school buildings were old, consequently needing constant and costly maintenance. School 3 and a part of School 4, having been built at the turn of the twentieth century, were thirty years older than the other schools. The others, Schools 1 and 2, and the annex to School 4, were built in the 1930's. School 1 housed the largest student population; almost two and a half times that of School 3, and 1.67 times the size of Schools 2 and 4.

Scheduling at School 1 differed from that of the other three schools. School 1 had 5 periods plus homeroom and a silent reading period. The additional time needed for each period at School 1 may have been necessary simply for its very large student body to move from class to class. The other three schools had six periods plus homeroom and silent reading periods. They scheduled 45-minute classes, creating an additional period from the saved minutes.

Scheduling at School 4 was very precise. A teacher said, "Classes start five minutes before the official time. The filing rule means all students and all teachers are in corridors as students file in single file along corridors to the next class. Clocks, watches, etc. are synchronized."

Principals

During the past 10 years, Schools 1 and 4 had experienced the sustained leadership of one principal for 10 and 8 years respectively. The principal of School 4 had resigned that position to assume an assistant superintendency. His successor was assigned in a smooth, orderly fashion. School 2's principal was entering his third year in office there during the year of most data collection for the study; he was transferred in the final year of the study, and replaced by another man. But School 3 had had a succession of three principals in the year and a half of data collection. Among all of the principals, the six men included one Asian, one white, two Hispanics and two blacks. Both women were black. All were very highly educated, with many credits beyond a master's degree but not a doctorate. All were experienced educators with at least some formal, supervised training in administration and leadership.

Teachers

Percentages of teachers responding were: in School 1, 48%; School 2, 33% (and an additional 19% who responded to an earlier version of questionnaire); School 3, 80%; and School 4, 58%. The teachers in the four schools were not significantly different from each other on a number of demographic characteristics. Their male/female ratio was 40.2% to 59.8%. Their racial/ethnic distribution was as follows: Asian, 1.2%; black, 16.5%; Caucasian, 63.5%; Hispanic, 10.6%; and other, 5.9%; the balance, 2.3% would not say. The teachers constituted a highly education work force. All of them had a least a bachelor's degree; 27% reported having some graduate work; 19% had a master's degree and 43% had credits beyond a masters degree.

The teachers represented a wealth of teaching experience. Only 15.4% had between 1 and 5 years of experience; 20% had 6 to 10 years; 15.4% had 11 to 15 years; 27.5% had 16 to 20 years; 11% had 21-25 years, and 11% had more than 25 years. The fact that the teachers did not differ significantly among schools in any of these demographic characteristics was not surprising, because there is a great deal of transferring among teachers from one school to another within the system. Only School 4 differed significantly in this respect. It had the highest percentage of teachers at the school for more than 5 years, 70%. The percentage of teacher who had been at School 1 more than 5 years was 32%, School 2, 36%, and School 3, only 19%.

CHAPTER 4

SCHOOL DIFFERENCES IN STUDENT ACHIEVEMENT

The ability to differentiate among schools on the basis of student achievement is central to the logic of this study. If the schools did not differ with respect to important achievement outcomes, there would be no point--indeed it would not be possible--to study what practices and conditions in the school environment are associated with these outcomes. However, while it is essential to establish that the schools are different, it is also crucial to use appropriate and valid indicators of the differences.

A point of departure for this research has been that standardized tests of basic skills are too narrow a measure of school effectiveness. What they do measure, they measure efficiently, with a high degree of reliability. The problem rests more with what they don't measure--higher order thinking, complex problem solving, and creative endeavors, as well as prosocial behaviors and volunteer service. Recognizing this limitation, the present study examined standardized test scores as measures of basic skills but also sought to complement these with additional measures of student achievement, including a new measure of higher order thinking and indicators of prosocial behavior. School differences on traditional measures of student achievement are the focus of this chapter. School differences on the new measure of higher order thinking are also given here, but a fuller discussion of the psychometric qualities of the new measure, called TOPS, or Test of Problem Solving, is reserved for Chapter 5.

Traditional Measures of Student Achievement

The original plan for the research called for the use of available standardized tests of basic skills as well as available criterion referenced tests. The latter were said to be a better fit to the schools' curricula, and therefore a more valid assessment of what the schools were actually striving to accomplish with their students academically. A writing sample with holistic scoring was to be used as a measure of creative written expression. A new measure of higher order thinking in the context of scientific problem solving was also developed and administered as planned. All but the last measure were supposed to have been part of the Boston Public School System's own plans for data collection. We would not intrude further on this schedule, except with the new measure, which would not duplicate any of their efforts.

Metropolitan Achievement Test

The Boston Public School System, like a great many systems across the country, continues to rely on standardized tests to monitor the progress of its schools. For Boston, the choice is the Metropolitan Achievement Test, sixth edition (Prescott, Balow, Hogan & Farr, 1988). According to its developers, the MAT6 was designed to reflect basic curricular content taught nationwide. Individual subtests were developed according to blueprints said to reflect the scope, emphasis, and grade placement of objectives revealed by curriculum guides, state syllabi, textbooks, and professional references. The extent to which the MAT6 is valid for Boston depends on its fit to local objectives. The MAT subtests in reading and mathematics are administered each year in all Boston Public Schools during the second week of May.

Criterion Referenced Tests

In the three years prior to data collection for this study, the Boston Public Schools used their own criterion referenced tests which had been designed by groups of teachers to reflect the city-wide curricula in several subject areas: mathematics, science, social studies, and English. In addition, a writing sample was given, and teachers were trained to use a holistic scoring procedure to score their own students' papers. All of these were to be used in the present study of school effectiveness as measures of student outcomes which were more directly related to what the schools were seeking to attain than the MAT, a standardized test of basic skills. However, in the year of data collection for the study, only the CRT-Mathematics was retained with the perennial MAT for student assessment system-wide.

Testing Schedules

The calendar of events in the Boston Public Schools which is circulated among the schools shows squares coded in dark gray for the days assigned to system-wide testing during the months of May and June. The calendar for 1989 suggested the schools did little else during the last six weeks of school. In fact, these were days when testing may occur, in May for the MAT subtests in reading and mathematics, in June for the CRT-Math and for final examinations given by individual teachers. The students were not tested all day, every day, on the dates designated for testing. But most knowledgeable observers would agree that the perception prevailed among teachers and students in the schools that they were being tested to death.

Teachers objected strenuously to the imposition of additional tests. They argued that the CRTs, which had been developed three years earlier, did not reflect what was actually being taught in the schools, and therefore were no longer valid. As well they might, they did not raise the same argument against the validity of the MATs, and so the latter were retained. (The system's superintendent insisted on retention of the MAT despite advice to the contrary from his own staff and from outside experts.) No efforts were made to update or replace the CRTs. The same ones developed in 1985 had been used in 1986 and 1987. The BPS Bureau of Research, with a professional staff of two, was in no position to engage in new test construction in addition to its other substantial responsibilities. Of the CRTs, only the CRT in mathematics was retained for system-wide assessment in 1989.

Final Grades

In the wake of these decisions to discontinue use of most of the CRTs, it became all the more important to obtain alternative indicators which would provide other dimensions of students' performance than scores on standardized tests of basic skills. The only choices available were final grades assigned by teachers in June, 1989 in the following subject areas: reading, English, mathematics, science and social studies.

Grades have limitations for comparisons beyond a single classroom, because teachers use a variety of methods for assessing, evaluating, and grading students. The methods might include daily assignments, responses to oral questions during instruction, paper and pencil tests and quizzes, performance appraisals, and homework. What student characteristics contribute to the assessment might include achievement, ability, effort, attitude, interest, and personality. Even those teachers of the same subject who agree that achievement should be the sole basis for evaluation might disagree on what to measure. The way contributing data are combined to yield a composite index, and what cutoffs are used for assigning letter grades can vary as well. Because grades are so idiosyncratic, grade to grade or school to school comparisons are virtually meaningless indicators of school differences. Instead, final grades were used only in the present study in correlational analyses to study the patterns of relationships among grades and among test scores.

Analysis of Achievement Data

Several kinds of analyses are reported for the achievement test data. First, descriptive statistics and graphic representations of the differences by school and by grade are shown for each test. Next, results of two-way analyses of variance--by school and by grade--are summarized. Sex differences in achievement data were studied, but these results are not presented here because in no case were significant differences found between male and female students on any of the test measures.

Race was not used as a factor in these analyses because race correlated significantly with assignment to special program. A chi square testing the relationship between race and special programs produced a highly significant result at $p < .0001$. Asians were overrepresented in the advanced work classes, blacks in special education, Hispanics in bilingual education, and whites in the regular program. Since assignment to programs was made largely on the basis of test scores, analysis by race would have stacked the deck against those schools serving higher percentages of blacks and Hispanics. Instead, a fairer comparison was made within special program, by school. The factor of enrollment in special program could not be added as a third independent variable to create a three-way analysis, because only selected schools have all programs and many empty cells would result.

Differences by School and by Grade

Descriptive statistics for each school at each grade level are presented in Tables 4.1 through 4.4 on the MAT-Reading, MAT-Mathematics, CRT-Mathematics and the Test of Problem Solving respectively. Figures 4.1 through 4.4 present the mean scores graphically for data from the tables with corresponding numbers.

Table 4.5 summarizes results of the two-way analyses of variance on each of the four achievement measures. For all measures, school differences were highly significant, as were grade differences, in all but one analysis. The notable exception occurred in the analysis of MAT-Reading test scores. These did not change significantly over grade level. But it is also important to note that interaction effects were significant in all four analyses. Achievement differences among schools need to be qualified by grade level, so one-way analyses of variance were run to investigate school differences at each grade level, and Duncan Multiple Range tests were used to determine more specifically which means were significantly different from each other. These results are summarized at the bottom of Tables 4.1 through 4.4.

MAT-Reading Scores

As reported in Table 4.1, the four sample schools had MAT-Reading scores which did not compare favorably with the national norms, as reported in the MAT-6 Technical Manual (Prescott, *et al.*, 1988). However, the ethnic distribution for students in the spring standardization program was very dissimilar to the racial/ethnic composition of the sample schools. The MAT standardization group was 75% white, 15% black, and 7.9% with "Spanish Surname," (Manual, p. 6) whereas only 9.1% of the students in the present study were white. Asian, black, and Hispanic minority students constituted the majority of the enrollments in the sample schools.

While the norm group may be judged an inappropriate comparison for the sample schools, the fact that the students attending these schools at the higher grade levels fell increasingly behind on MAT-Reading scores is cause for concern. The average for sixth grade students, buoyed by the high scores for those in School 2, was only seven scaled score points below the mean on the national norm (less than one/eighth a standard deviation). However, the average for seventh-graders enrolled in the four schools fell 25 points or almost two-thirds of a standard deviation below the mean for the norm group. Eighth-graders in the sample averaged even lower, falling .72 standard deviations behind.

Thus, the means for all four schools overall showed no increase in reading scores over grade level and comparatively fell further and further behind the national norm for the grade level; but these overall results obscured different patterns for different schools. School 1 showed virtually no difference over grade level, and School 3 showed a slightly higher scores for its seventh graders compared to its sixth-grade students. The pattern for School 2 went from a high, exceeding the national average for its sixth grade students, to a precipitous drop of almost one full standard

TABLE 4.1

Mean Scaled Scores, Standard Deviations, and Grade Equivalents on the MAT-Reading and Significant Differences Among Schools by Grade

Grade Level	Grade 6		Grade 7		Grade 8	
MAT Test Form	Int. L		Adv. L		Adv. M	
Type of Score	SS	*GE*	SS	*GE*	SS	*GE*
National Norms	649	*6.7*	666	*7.8*	679	*8.8*
All Four Schools	642 (51)	*6.0* n=492	641 (38)	*6.0* n=404	646 (46)	*6.3* n=383
School 1	636 (50)	*5.8* n=213	635 (40)	*5.8* n=175	633 (43)	*5.6* n=169
School 2	662 (58)	*7.6* n=115	636 (32)	*5.8* n=70	657 (44)	*7.1* n=58
School 3	636 (31)	*5.8* n=56	646 (31)	*6.3* n=65	644 (33)	*6.1* n=48
School 4	638 (46)	*5.8* n=108	650 (38)	*6.7* n=94	661 (52)	*7.3* n=108
F Ratios	8.00****		4.02**		9.79****	
Duncan Tests	1,3,4<2		1,2<4		1,3<2,4	

**p<.01
****p<.0001

Note.--Scaled score means are given in regular type face, standard deviations in parentheses, grade equivalents for Spring test administrations in italics, and cell n's as noted.

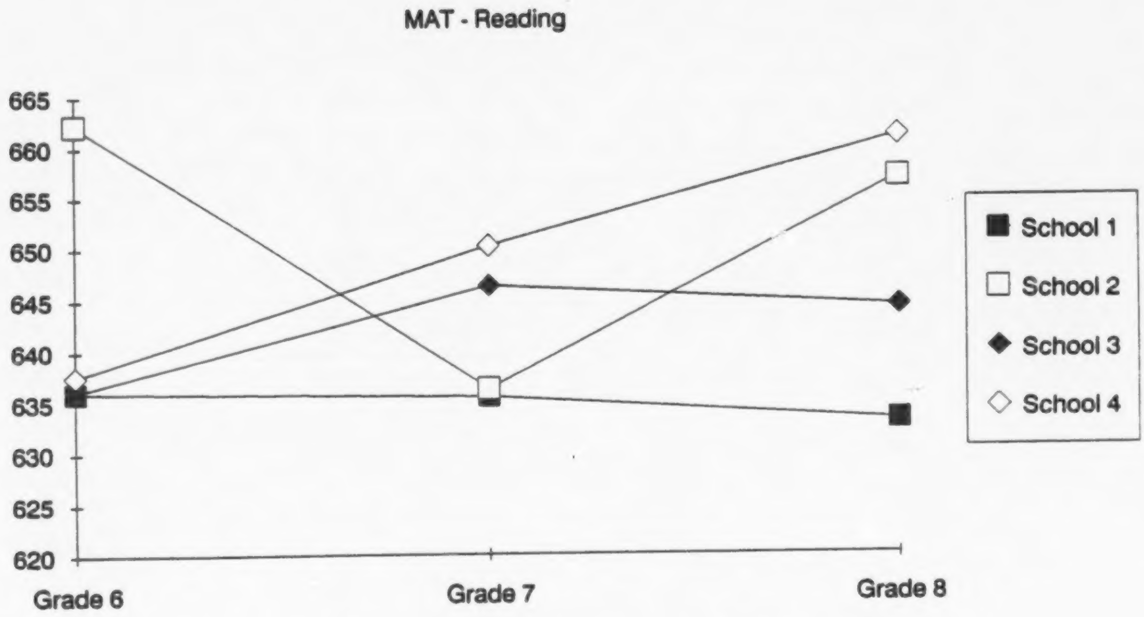

Figure 4.1.A Line Graph of MAT-Reading Scores by School and Grade

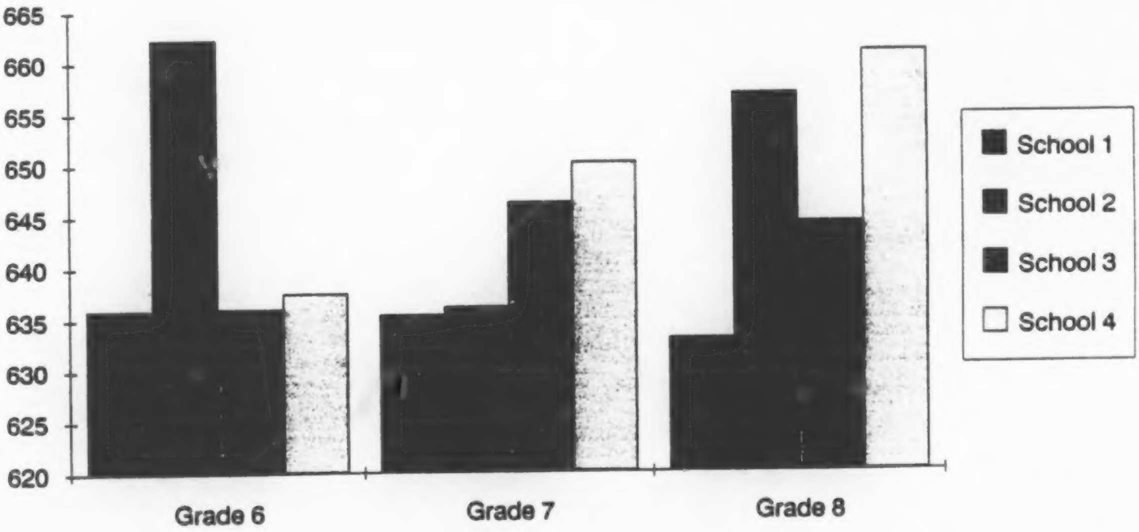

Figure 4.1.B Bar Graph of MAT-Reading Scores by School and Grade

TABLE 4.2

Mean Scaled Scores, Standard Deviations, and Grade Equivalents on the MAT-Mathematics and Significant Differences Among Schools by Grade

Grade Level	**Grade 6**		**Grade 7**		**Grade 8**	
MAT Test Form	Int. L		Adv. L		Adv. M	
Type of Score	SS	*GE*	SS	*GE*	SS	*GE*
National Norms	639	*6.7*	650	*7.5*	665	*8.8*
All Four Schools	647	*7.2*	642	*6.9*	655	*8.0*
	(44)	n=485	(32)	n=407	(38)	n=373
School 1	646	*7.2*	641	*6.8*	639	*6.7*
	(43)	n=213	(32)	n=179	(28)	n=162
School 2	658	*8.2*	638	*6.5*	669	*9.4*
	(46)	n=114	(27)	n=69	(38)	n=58
School 3	625	*5.7*	627	*5.9*	658	*8.2*
	(26)	n=55	(22)	n=66	(36)	n=47
School 4	651	*7.6*	656	*8.1*	670	*9.5*
	(47)	n=103	(37)	n=93	(42)	n=106
F Ratio	7.45****		11.59****		21.34****	
Duncan Test	3,1<4,2		3<2,1<4		1<3,2,4	

****p<.0001

Note.--Scaled score means are given in regular type face, standard deviations in parentheses, and grade equivalents for Spring test administrations in italics.

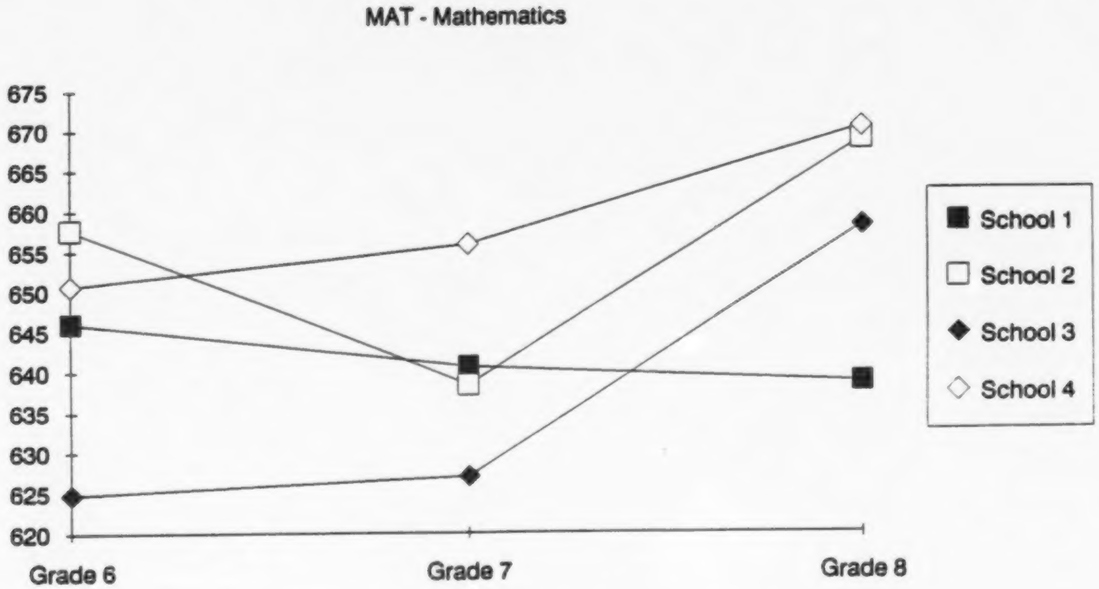

Figure 4.2.A Line Graph of MAT-Mathematics Scores by School and Grade

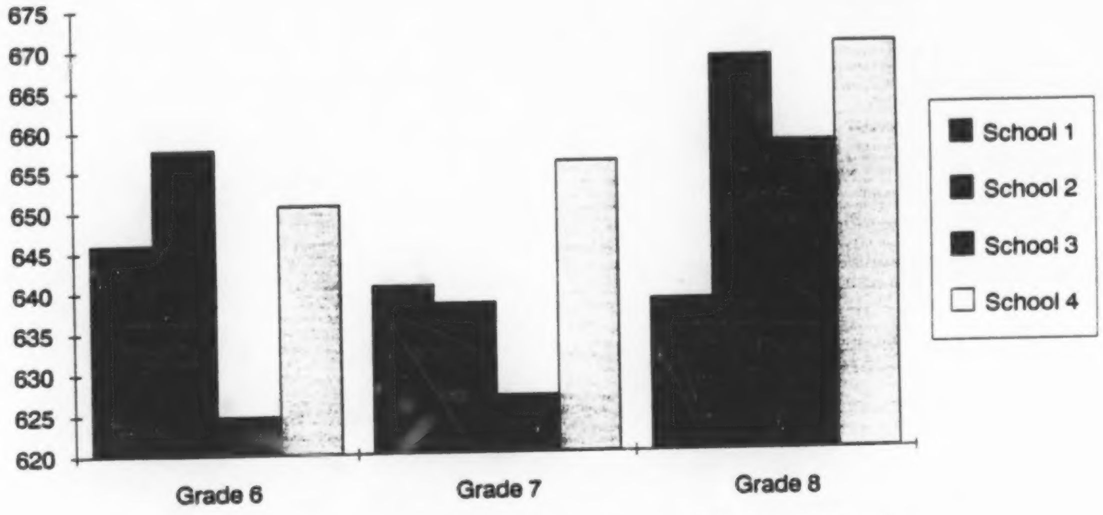

Figure 4.2.B Bar Graph of MAT-Mathematics Scores by School and Grade

TABLE 4.3

Means and Standard Deviations on the Criterion Referenced Test in Mathematics and Significant Differences Within Grade by School

Grade Level	Grade 6	Grade 7	Grade 8
All Four Schools	58.8 (22.0) n=428	54.1 (17.5) n=387	60.5 (20.2) n=330
School 1	54.0 (20.3) n=155	50.9 (16.4) n=162	47.2 (16.8) n=136
School 2	61.1 (23.1) n=132	51.1 (16.5) n=89	64.4 (18.7) n=80
School 3	63.2 (23.8) n=51	57.9 (17.6) n=54	79.0 (11.9) n=31
School 4	61.2 (20.8) n=90	61.3 (18.4) n=82	71.8 (14.7) n=83
F Ratios	4.07**	8.56****	57.99****
Duncan Tests of Mean Differences[a]	1<2,4,3	1,2<3,4	1<2<4<3

**p<.01
****p<.0001

Note.--Mean scores are given first in each cell followed by standard deviations in parentheses and cell n's.

[a] Schools are identified by number, consistent with usage in the text. A "<" indicates a significant difference among means in the order given.

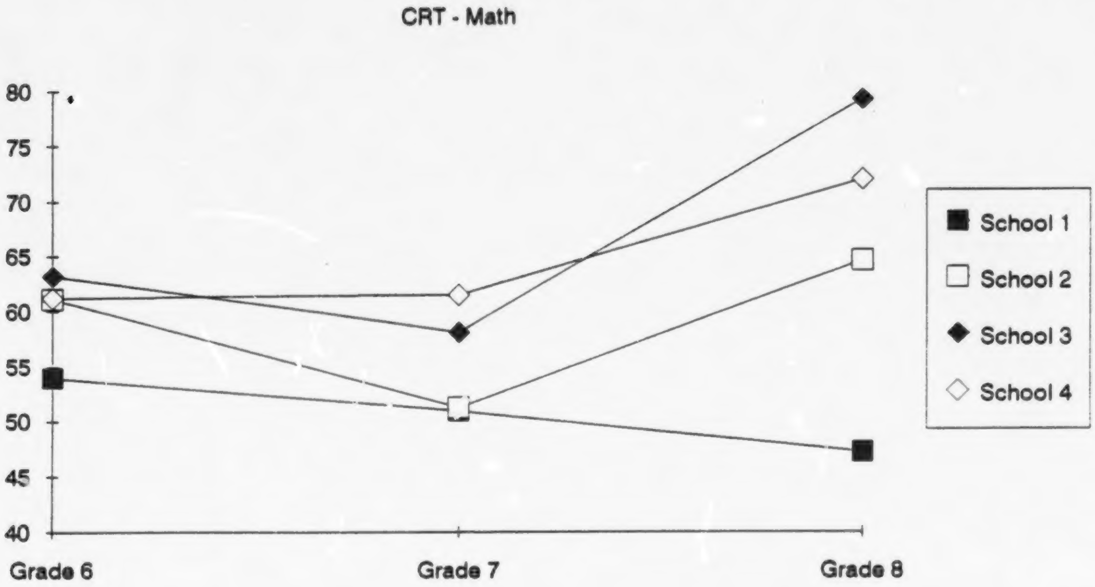

Figure 4.3.A Line Graph of CRT-Mathematics Scores by School and Grade

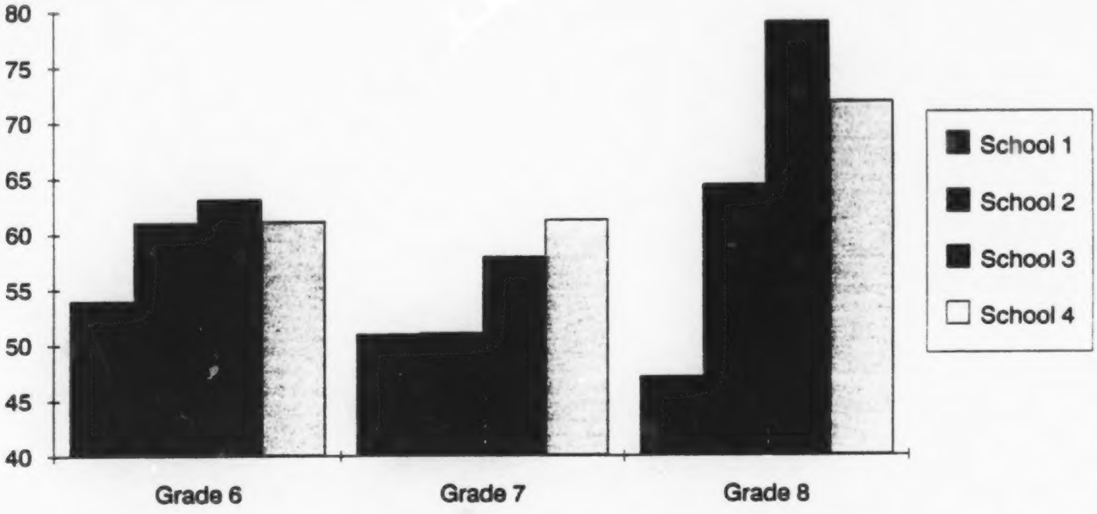

Figure 4.3.B Bar Graph of CRT-Mathematics Scores by School and Grade

TABLE 4.4

Mean Raw Scores, Mean Percentage Scores , and Standard Deviations on the Test of Problem Solving and Significant Differences Within Grade by School

Grade Level	Grade 6	Grade 7	Grade 8
All Four Schools	16.9 [55%][a] (6.4)[b] n=391	18.1 [58%] (5.4) n=279	18.4 [59%] (5.7) n=302
School 1	15.3 [49%] (6.7) n=206	16.8 [54%] (5.6) n=158	17.0 [55%] (5.5) n=132
School 2[c]	20.7 [67%] (5.5) n=68	15.0 [48%] (6.2) n=16	17.1 [55%] (6.1) n=43
School 3[c]	14.7 [47%] (3.8) n=26	20.6 [66%] (3.9) n=27	17.4 [56%] (5.7) n=42
School 4	18.4 [59%] (5.4) n=91	20.5 [66%] (3.9) n=78	21.6 [70%] (4.6) n=85
Significant differences	School 1<4	School 1<4	School1<4

[a] Percentage scores, given in brackets, are raw scores divided by 31, the total number of items on the test.

[b] Standard deviations are given in parentheses.

[c] The return rates for Schools 2 and 3 were too low to be considered representative. The tests of significance were recomputed, comparing only Schools 1 and 4 by grade. Highly significant differences favored School 4 over School 1 at all three grade levels.

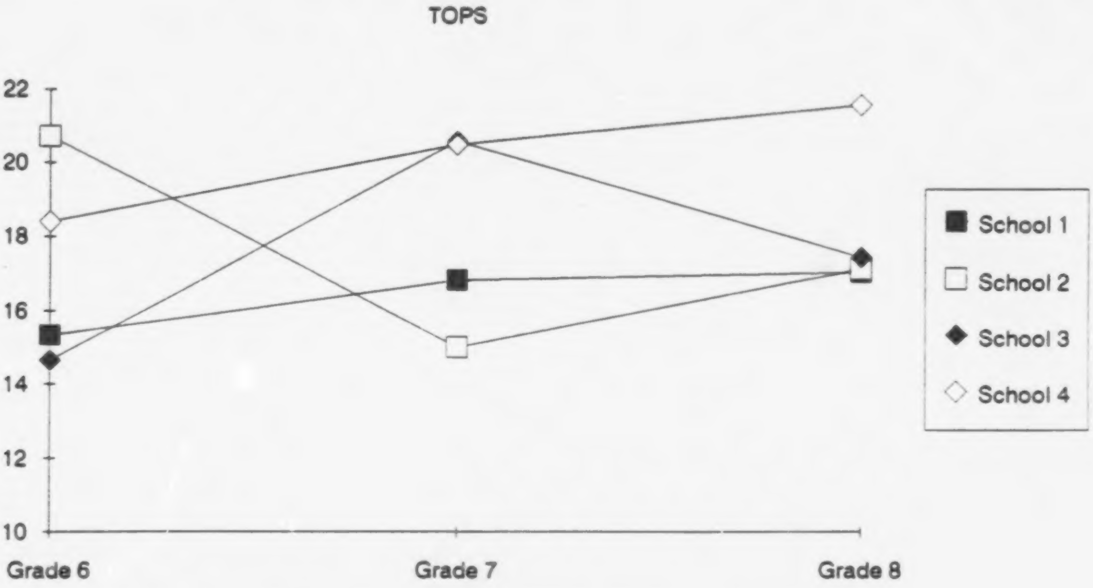

Figure 4.4.A Line Graph of Test of Problem Solving Scores by School and Grade

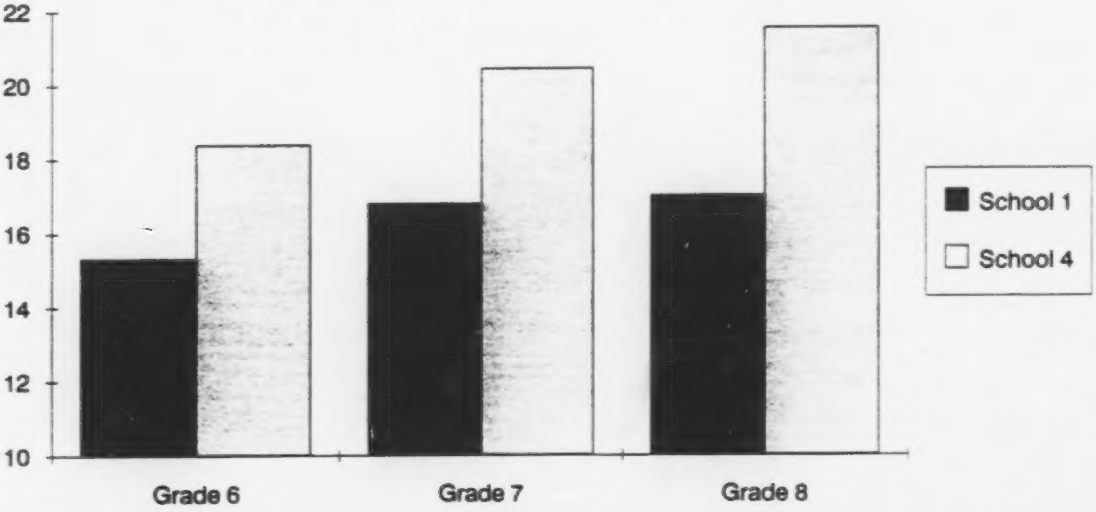

Figure 4.4.B Bar Graph of Test of Problem Solving Scores by School and Grade

deviation to a point below the national norm for its seventh grade students, to a level only one-half a standard deviation below the national norm for its eighth grade students. Only School 4 showed steady and significant increases over grade level; still its performance lagged behind national norms.

The fact that MAT reading scores showed a precipitous drop between sixth and seventh grade can probably be explained by the exodus of so many sixth grade students from School 2 to the prestigious "examination schools," Boston Latin School and Boston Latin Academy which begin at seventh grade. School 2 houses

TABLE 4.5

Summary of Significant F Ratios from Two-Way Analyses of Variance Of Student Achievement Measures

ANOVA Effect	School	Grade	Interaction
df	3[a]	2	6
Achievement Measure:			
MAT-Reading	12.55****	NS	4.88****
MAT-Mathematics	21.75****	10.51****	7.63****
CRT-Mathematics	37.95****	11.12****	9.04****
Test of Problem Solving[a]	71.98****	11.01**	NS

**p < .01
****p < .0001

[a] Since representative returns on the Test of Problem Solving were obtained only for students in School 1 and 4, Schools 2 and 3 were eliminated from this analysis. The df for the school effect in the ANOVA with TOPS was 1; the df for the interaction effect was 2.

"advanced work classes", only at the sixth grade level, which appear to serve as an unofficial preparatory program for students moving on in the seventh grade to the exam schools. The drop in scores reflects a dramatic change in the population of seventh grade students at School 2; it is not an indictment of the school's seventh grade reading teachers. What is happening at School 2 to account for the dramatic rise in reading scores from grade seven to grade eight is less clear; it may be outstanding instruction, more likely it is attrition of lower achieving students. The same pattern of differences in means, high-low-high, for grades six, seven and eight, at School 2 is observed in the graphs for both tests of mathematics.

MAT-Mathematics Scores

MAT-Mathematics Scores for the four sample schools compared more favorably to national norms than the MAT-Reading Scores for these schools. As indicated in Table 4.2, the overall average for sixth graders even exceeded the mean for the norm group by eight scaled score points, or about .2 standard deviations. The means for seventh and eighth graders fell behind, by 8 and 10 points respectively, or about one-quarter standard deviation in each case. However, this overall finding varied significantly by school.

Starting with sixth graders who averaged above the national norm, School 1 saw its seventh graders fall slightly behind, and its eighth graders average 16 points, or more than half a standard deviation behind. School 2 had the same high-low-high pattern which it exhibited for the MAT-Reading scores. Sixth and seventh grade students in School 3 scored disappointingly low, but then the eighth-graders in School 3 showed substantially higher performance than those in the lower grades, just .2 standard deviations below the national norm. For better or worse, knowledgeable observers in School 3 think the relatively higher performance of its eighth graders is attributable to its eighth-grade mathematics teachers' "teaching to the test." Once again, School 4 was the only one of the four schools whose students showed sustained differences over grade level, but this time each grade's performance exceeded the national norm, by five to 12 scaled score points.

Criterion Referenced Test in Mathematics

Different forms of the Criterion Referenced Tests in Mathematics were given at each grade level, corresponding to the instructional objectives set for that grade. However, since different objectives were held for different grade levels, no attempt was made by the developers to calibrate the tests for comparative performance over grades. Differences in scores over grade level should be interpreted relative to students' percent of mastery of the objectives for the grade. Mean scores by school and grade on the CRT-Math are shown in Table 4.3.

Once again students in School 1 showed a consistent pattern relative to the other schools--lowest in grade six, and plateauing or declining compared to other schools for students in grades seven and eight on the CRT's in mathematics. Students in School 2 demonstrated the same high-low-high pattern for its sixth versus seventh versus eighth graders respectively on the CRT's in mathematics as they did for the MAT's in reading and in mathematics, but for the CRT's the "high's" did not exceed the means of the other schools. The pattern of means over grade level on the CRT's for students in School 4 showed them at or near the high end compared to other schools at all grade levels, but on the CRT's there was no increase in performance by seventh grade students in School 4 over sixth grade students in School 4, perhaps because their tests measured different objectives.

School 3 was the only one of the four schools whose student performance over grade level showed a very different pattern relative to other schools on the CRT's versus the MAT's. On the CRT's, School 3 students scored highest at both the sixth grade and the eighth grade levels. In the latter case the difference was significant; School 3 eighth graders taking the test showed 79.0% mastery of the objectives.

Test of Problem Solving

Mean raw scores by school and by grade on the Test of Problem Solving are presented in Table 4.4. All 972 students completing the TOPS are used in the analysis of the test's phychometric characteristics, which are reported in Chapter 5. However, due to very low rates of return for students in Schools 2 and 3, 21% and 35% respectively, school-to-school comparisons are made only for Schools 1 and 4.

The same version of TOPS was administered at all three grade levels. As reported in Table 4.4 and pictured in Figure 4.4, School 4 shows sustained increases among its students over grade level, while in School 1 its seventh graders score higher than its sixth graders, but its eighth graders' scores plateau in comparison to seventh graders. The two-way, school by grade analysis of variance for students in Schools 1 and 4 produced a highly significant main effect for school ($F=71.98$, $p < .0001$), a significant main effect for grade ($F=11.01$, $p < .0001$), and no significant interaction effects. The same pattern of school-to-school differences between Schools 1 and 4 favored School 4 at every grade level.

Overall Differences in Achievement

To summarize across test measures, School 1 ranks at or near the bottom compared to the other schools, and its students' performance usually declines but not sharply so over grade level. Students in School 2 exhibit a variable pattern of achievement by grade, generally higher for sixth graders and eighth graders relative to students in the other schools, but this is most likely due to the exodus of higher achieving sixth grade students from School 2 to the prestigious examination schools in grade seven, the attrition of lower achieving seventh grade students from School 2, whose eighth grade class shows the highest shrinkage of the four schools.

Students in School 3 show an inconsistent pattern of test performance over test measure; they score among the lower achieving schools on the MAT's at most grade levels, but they average highest on the CRT in mathematics among sixth and eighth grades, where there is much "teaching-to-the test." Students at all grades in School 4 score at or near the top compared to students in the other schools on almost every measure. The notable exception occurs in MAT-reading scores for sixth graders, who, like the students in schools 3 and 1, score significantly lower than students in School 2. Overall, School 4 presents profiles of higher student achievement with steady increases over grade level.

Differences by Program

It was noted earlier in this chapter that assignment to special programs within the schools is done largely on the basis of test scores. Test scores provide the exclusive basis for entry into programs at the sixth grade level. In some of the schools,

TABLE 4.6

Summary of F Ratios for Significant Differences in Achievement Scores By School, Within Program, N's for Comparisons, and Duncan Tests of Mean Differences[a]

Measure of Achievement	Regular Program	Special Ed.	Bilingual Ed.	Combin. SE+BE	Advanced Work Class
MAT-Read	11.23**** n=375 1,3,2<4	26.61**** n=125 1<2	NS n=557	NS n=20	28.65**** n=121 1<2
MAT-Math	21.50**** n=376 3,1<2<4	5.35* n=123 1<2	5.24** n=545 3,1<4	NS n=19	NS n=121
CRT-Math	22.46**** n=353 1<2<3.4	12.26**** n=136 1<2	21.40**** n=433 1<2<4,3	4.27* n=37 1<2	NS n=109
TOPS	25.86**** n=259 1,3<4 1<2	NS n=113	12.43**** n=411 1,2<4 1<3	NS n=28	4.32* n=99 1<2

[a] Schools are designated School 1, School 2, School 3, and School 4.

teacher recommendations and grades are considered for student assignment to special programs at the seventh and eighth grade levels. But the special programs are not uniformly distributed across the four schools. Only Schools 1 and 2 have advanced work classes; these two schools also have bilingual education programs, School 1 for Hispanics, School 2 for speakers of Asian languages. All four schools enroll students in regular programs and all four schools have special education programs, but Schools 3 and 4 have no special programs other than special education. The fairest comparison among schools is best made according to program.

Significant differences in the various measures of student achievement among schools within program are summarized in Table 4.6. In every comparison producing a significant difference involving School 4 (those for students in regular programs and in special education), School 4 placed on the high end or higher than the other Schools. In every comparison which produced a significant difference involving School 1, i.e., for students in all five types of programs using all five achievement measures, students in School 1 ranked lowest.

School 2 was significantly higher than School 1 on almost every measure for students in almost every comparison by program. Students in School 3 exhibited a variable pattern, significantly lower on some measures (MAT-Math, and MAT-Reading) than students enrolled in the same programs at some schools, significantly higher on another measure (CRT-Math).

Overall, students' performance on traditional measures of achievement is lowest in School 1 and highest in School 4, whether the comparison is made for school overall by grade, or for schools within special programs. School 2 is clearly superior in student achievement to School 1, but the difference between School 2 and School 3 is not as clear.

Correlations Among Achievement Measures

Another way of examining factors which contribute to student achievement is through regression analysis. Several were tried, but the alterable variables among the student data base, besides tests and grades, contributed very little to explained variance. Instead, the simpler correlation matrix is presented here, showing correlations among tests and grades and other selected indicators of student

TABLE 4.7

CORRELATION MATRIX FOR ACHIEVEMENT TEST SCORES AND FINAL GRADES

	Test scores				Final Grades				
Measure	MAT-Read	MAT-Math	CRT-Math	TOPS	Read	Eng	Math	Sci	SocSt
MAT-Read	—	.61 (1243)	.52 (1051)	.61 (880)	.17 (923)	.28 (1210)	.27 (1271)	.27 (1070)	.31 (994)
MAT-Math		—	.76 (1045)	.59 (877)	.36 (911)	.45 (1198)	.56 (1257)	.39 (1054)	.44 (983)
CRT-Math			—	.53 (791)	.30 (811)	.42 (1087)	.63 (1143)	.39 (976)	.45 (890)
TOPS				—	.22 (744)	.31 (913)	.32 (969)	.25 (795)	.31 (733)
FG-Reading					—	.64 (1131)	.59 (1170)	.54 (995)	.61 (1058)
FG-English						—	.61 (1479)	.67 (1275)	.67 (1256)
FG-Math							—	.59 (1330)	.59 (1260)
FG-Science								—	.64 (1105)
FG-SocStudies									—

Note.--Numbers in parentheses are the number of pairs of data on which each coefficient was based. All coefficients are significant at $p < .0001$.

achievement. Rewards and punishments by the school and by teachers, and whether the students like school, are among the selected variables which are included in the discussion.

Correlation coefficients showing the relationships among tests and grades for students in all four schools are presented in Table 4.7. The three achievement tests correlate highly with each other. The correlation between the two tests of mathematics, one a norm-referenced test (MAT-Math), the other purportedly a criterion referenced test (CRT-Math), is very high, at .76. The standardized test of reading (MAT-Read) correlates significantly with both tests of mathematics, .52 with the CRT-Math, and .61 with the MAT-Math.

Grades correlate with grades in the range from .55 to .67, no matter what subject is addressed. This suggest that teachers are moderately consistent in their assignment of grades among students. In general, tests and grades do not correlate as highly as either types of measures do among themselves, nevertheless the intercorrelations between tests and grades are noteworthy. The highest, at .63, between final grades in mathematics and CRT-Math scores suggests the latter is really functioning as a criterion-referenced test. Even the standardized, norm referenced MAT-Math scores correlate moderately (.56) with mathematics grades. Both mathematics tests also show correlations between .30 and .45 with all other grades, for science as well as for subjects in the humanities.

Intercorrelations between MAT-Reading scores and grades were not nearly as high, ranging from .17 to a maximum of .31. The lowest correlation was observed for relationship between reading test scores and reading grades, a finding which surprised many observers. The correlation was checked using different portions of the data base, by schools individually and by subgroups of the population. Still the correlations remained low, sometimes approaching zero. Even when students in special education and bilingual education were removed from analysis, on the argument that teachers might be grading more on effort than objective achievement, the correlations between reading scores and reading grades remained low, usually between zero and .20, only once rising to .40 for students in the regular program and those in advanced classes in School 4. The MAT-Reading scores correlated more highly with other grades than with reading grades, consistently .27 with English, mathematics, and science grades and .31 with social studies grades.

MAT-Reading scores have assumed enormous importance in the Boston Public Schools. They are used oftentimes exclusively as the basis for student assignment to programs; scores below an eighth grade level disqualify students for graduation. New scores are heralded each June in local newspapers and the success or failure of the system is seen to coincide with rising or falling MAT reading scores. The finding that reading scores and teachers' judgements of how well their students are doing in reading have almost no overlap is alarming at best.

Rewards and Punishments in Relation to Achievement

Students' reports of rewards and punishments given to them by the school and by teachers showed noteworthy correlations with test scores and with grades. Students who reported being suspended in the current school year were likely to have lower grades (the median correlation was -.20 between suspension and grades), but the correlations between suspensions and test scores dropped to below .10. Similarly, students whom teachers punished a lot were less likely to receive good grades; here the correlations were even stronger, ranging from -.20 to -.31, but the correlation between being punished and test scores dropped down to .04. Similarly, there were low but significant correlations, around .20, between grades and rewards, by the school and by teachers, but lower or no correlation between rewards and tests. It would appear that teachers are including behavior as well as academic achievement in their criteria for grades.

Students who report liking school are slightly more likely to get higher grades. The median correlation for all subject areas is .15, but the correlation drops to .05 between liking school and performance on tests.

Finally, there is a factor score derived from the student questionnaire which is reported more fully in Chapter 10. The factor measures the student's perception of whether their teachers are promoting competition for grades, getting higher tests scores, and working independently--the opposite of cooperative learning. Scores on this factor correlate negatively with test scores, ranging from -.21 for the MAT-Math to -.24 for MAT-Reading.

A Longitudinal Perspective on School Differences in Academic Achievement.

The data for this study which come from the student questionnaire are cross-sectional; funding could not be secured to monitor changes in these schools over time. Nonetheless, it was possible to pull from the larger sample those eighth grade students who reported attending their present school since the sixth grade. Since there are great shifts from year to year in the populations of students attending these schools, it is important to look at those students who have sustained enrollment in their schools from grades six through eight. The attraction to the city's more prestigious examination schools is assumed to affect all four schools but those schools with advanced work classes have larger numbers of academically talented students and so will be affected even more. Looking at the eighth graders who didn't move to exam schools in grade seven and who have enrolled in their schools for three years provides a way to asses the schools' sustained contribution to student achievement more fairly.

Results of one-way analyses of variance by school using the various achievement measures as dependent variables and only eighth graders as subjects are summarized in Table 4.8. All four analyses produced significant F ratios. Students at School 4 were consistently in the top group on every achievement measure. Students at School 2, claimed by its principal to be the flagship of Boston middle schools, did not do as well as their press; they performed best on the MAT-Mathematics, but not significantly better than the eighth grade students in School 4. The performance of eighth grade students from School 2 on the new measure of problem solving (which will be introduced in the next chapter) was lowest of all. While students in School 4 were consistently in the top group, students in School 1 were consistently on the negative side of significant differences. Eighth grade students in School three for three years generally did more poorly than others but they excelled on the CRT-Mathematics. It can be said that the analyses by school which were limited to eighth graders who had been at their schools for three years showed the same pattern of high and low achievement which was reported for their school overall.

TABLE 4.8

Means, Standard Deviations, and Significant F Ratios for Differences in Achievement Scores by School and Duncan Tests of Mean Differences Among Eighth Graders Who Have Attended Their School for Three Years

Achievement Measure	School 1	School 2	School 3	School 4	F
MAT-Read	644.6	658.6	641.4	660.2	2.39**
	(38.22)	(44.27)	(27.60)	(46.84)	
	n=87	n=31	n=16	n=67	3,1<4
MAT-Math	641.4	671.5	646.9	666.6	8.24****
	(29.49)	(33.42)	(35.33)	(45.20)	
	n=81	n=31	n=16	n=66	1,3<4,2
CRT-Math	49.83	67.31	77.03	72.24	25.60****
	(17.80)	(14.92)	(13.52)	(14.79)	
	n=74	n=39	n=12	n=49	1<2,4,3
TOPS	16.47	16.33	17.94	21.90	9.71****
	(6.17)	(5.97)	(5.08)	(4.87)	
	n=64	n=24	n=16	n=53	2,1,3<4

**p<.01
****p<.0001

Summary

The Boston Public Schools had instituted a program of extensive testing of students with Metropolitan Achievement Test (MAT) subtests in reading and mathematics, system-wide criterion referenced tests (CRTs) in four subject areas, as well as a writing sample. All of these measures were to have been used for analysis in the present study. However in the year of data collection for the study, 1989, the schools cut back on the quantity of testing, limiting test administration to the use of the two MAT subtests and the CRT in mathematics only. Only some schools collected and scored a writing sample, whose grade was supposed to be incorporated into the final grade in English. A new measure of high order thinking call Test of Problem Solving, or TOPS was administered with representative results from two of the four schools..

Since the criterion-referenced tests which were preferred for the present study as measures more closely aligned with the goals of instruction were no longer being used, we elected to examine teachers' final grades in academic subjects. Teacher grades are idiosyncratic, because teachers are known to use a variety of methods and criteria for assessing student performance. Grade to grade or school to school comparisons are virtually meaningless indicators of school differences. But grades have some utility in correlational analyses with test data and students' reports of rewards and punishments by the school and by teachers.

Several kinds of analyses were reported for the student achievement data. First, descriptive statistics and graphic representation of mean scores were presented for all four achievement test measures. Then two-way analyses of variance by school and by grade--were summarized. For all measures, school differences were highly significant, as were most grade differences, but so were the interaction effects for these two factors. School to school differences had to be qualified according to grade level.

School 1 showed the same pattern of performance relative to the other schools on all measures of achievement. It ranked at or near the bottom, and its students' performance declined, but not sharply, over grade levels. School 2 had consistent profiles for comparisons on each achievement measure; in each case student performance dropped precipitously from grade six to grade seven, then rose sharply in grade eight. The most plausible reasons for this pattern were that better students left School 2 after grade six to attend the more prestigious examination schools in the system, and that lower achieving students dropped out after grade seven. School 3 showed very variable patterns on different measures of achievement. School 4 students were consistently at or near the top on all achievement measures at all grade levels but one; reading scores for their sixth grade students were lower than those of School 2.

Since tracking occurs in the schools through student assignment to special programs, it was decided that a fairer way to compare the schools was program by program. All four schools had students assigned to regular programs with no special intervention, and all four schools had special education programs. Only Schools 1 and 2 had bilingual programs, School 1 for Hispanics, and School 2 for speakers of Asian languages. Also, Schools 1 and 2 were the only ones with advanced work classes. In analyses by programs where all four schools could be compared, School 4 was consistently among the highest for which significant differences were found, and School 1 was consistently at the bottom or among the combination of schools anchoring the low end. The pattern of highs and lows for School 3 was erratic, but most often School 3 ranked among the lower achieving schools. Students in School 2 performed higher than students in School 1 on every achievement variable in every analysis, overall, by grade, and by program.

Correlations among achievement measures showed that regardless of subject, grades correlate with grades and test scores correlate with test scores, producing moderate to high correlation coefficients ranging from .52 to .76. Scores on the CRT and the MAT in mathematics correlated .76 and .61 respectively with final grades in mathematics. Intercorrelations between reading test scores and grades were not nearly as high, ranging from .17 to a maximum of .31. The finding that test scores and final grades in reading correlate only .17 was alarming to most observers who know the stress assigned to reading scores in the placement and promotion of students in the Boston Public School system.

Students' reports of rewards and punishments accorded to them by the school and by teachers showed noteworthy correlations with test scores and with grades. Students who reported having been suspended or punished by teachers tended to have lower grades, but their test scores did not distinguish their achievement from those of students who reported no suspensions or other punishments. Students who reported being rewarded by the school or by teachers tended to have somewhat higher grades, but the correlation did not hold for test scores. Students who thought their teachers promoted competition among students actually did more poorly on tests.

Finally, since funds could not be obtained to conduct a longitudinal study in the schools, it was decided to pull from the larger sample those eighth grade students who reported attending their present school since the sixth grade. This strategy enabled investigation of the schools' influence on student achievement over time. Results from these analyses confirmed those reported earlier. School differences in achievement showed the same patterns when the analyses were limited to eighth graders who had attended their schools for three years as they did for students overall.

CHAPTER 5

BEYOND BASICS: ASSESSMENT OF HIGHER ORDER THINKING

The Importance of Higher Order Thinking

Highly critical of the education being offered to students in middle grades in many of this country's schools, the Carnegie Council on Adolescent Development charged that: "Nowhere is this failure more evident than in the development of American young adolescents' critical reasoning and higher order thinking." The criticism is not a new one in substance, but it has become more intense. Under various labels, exhortations to teach for "critical thinking," "higher order cognitive functioning," and "complex problem solving," have been voiced for decades (Anderson, Marcham & Dunn, 1944; Dewey, 1910; Follman, Brown & Burg, 1970; Guilford, 1965; Gantt, 1970; Shann, 1976; Swick & Miller, 1975). Nearly twenty years ago, Skinner (1971) warned that critical thinking is important because it helps students learn how to deal with rapid societal change, put new knowledge to use, and make decisions.

What has changed dramatically is the way we gauge our society's productivity. No longer are we in an industrial age, but rather an age of information technology, in which many people need to make a living by thinking, and not by rote assembly. Educational goals and objectives previously reserved for the elite are now being held for the masses. Resnick points this out in her historical perspective on the revival of teaching higher order skills which had previously been the focus of the academies: "Today, we are committed to educating all Americans in the secondary schools and a large proportion (higher than any other country in the world) in some form of postsecondary institution. These students' educational needs cannot be met by traditional vocational programs that no longer prepare students for productive participation in an increasingly diversified economic environment. Employers today complain that they cannot count on schools and colleges to produce young people who can move easily into more complex kinds of work (Resnick, 1987, p. 6)."

Fueling this renewed interest in teaching for higher order thinking skills is "the single most important message of modern research on the nature of thinking" (Resnick, 1987, p. 8) that the kinds of processes traditionally associated with higher order thinking are not limited to advanced levels of development. Contrary to widespread conventional belief, cognitive development during early adolescence is not in latency during this period of rapid physical change. The recently prevailing notion to the contrary has had substantial and damaging effects on middle grade education by limiting the development of innovative curricula to promote higher order thinking. A thorough review of recent studies of cognitive development in adolescence found no persuasive evidence that young adolescents are incapable of higher order skills (Graber & Petersen, 1990).

In fact the term "higher order" skills is fundamentally misleading, because it suggests that lower order skills need to come first in a very linear fashion. The growing body of research in cognitive science on the acquisition of thinking skills particularly in reading, but also mathematics, attests to this finding. Long years of drill on the "basics" before thinking and problem solving are required can no longer be justified.

Yet, higher order thinking and critical reasoning have not being taught extensively, probably because teachers are unprepared to teach it well (Woods & Walton; Henderson, 1972). Pervasive use of standardized tests of basic skills as the primary vehicle for accountability no doubt contributes to the problem. Despite the reason, the outcome is well documented; both the National Assessment of Educational Progress (1985) and the National Commission on Excellence in Education (1983) have presented data showing that schoolchildren in this country do learn large amounts of information, but they do less well on what are variously called the "higher order skills" or the metacognitive skills--how to analyze, synthesize, and evaluate that information for their own use.

The Problem of Definition

Defining higher order cognitive functioning is the first problem which writers on the topic must address. Disciplinary perspectives often color their choice of terms; philosophers promote logical thinking and critical reasoning; developmental psychologists point to metacognition; educators advocate teaching study skills and real life problem solving; cognitive scientists focus on cognitive strategies and heuristics for problem solving.

Fifteen years ago, the more widely used label was "problem solving" but the interpretations were just as various (Shann, 1976). Problem solving in writings on education philosophy and on philosophy of science reflected views of problem solving as logical thinking (Dewey, 1910) and the scientific method (e.g., Cohen & Nagel, 1934; Nagel, 1961; Hempel, 1966; Foster & Martin, 1966; and Martin, 1972). Psychologists theorizing on problem solving postulated models of the process which seemed to follow either of two approaches: one, the identification of subgroups of the intellectual processes whose linkages may be of the linear or feedback variety (Johnson, 1962; Merrifield, Guilford, Christensen, & Frick, 1962; Gagne, 1956, 1964; Feldhusen, Houtz & Ringenback, 1972); and another, the analysis of problem solving processes through information processing analysis of complex skills (Newell & Simon, 1972; Simon, 1976).

Some of the more recent research on higher order skills and problem solving has been interdisciplinary, marking advancements in cognitive science. This interdisciplinary movement has joined psychologists, educators, computer scientists, philosophers, linguists, and neurologists, among others attempting to look into the thinking mind, figuratively at least, and study the nature of human thinking and the process of reasoning. Still, the question of generalizability of higher order thinking skills across disciplines has been the subject of much debate (Ennis, 1989; Glaser, 1984; McPeck, 1981; Norris, 1989; Orton, 1988; Paul, 1985; Perkins & Salomon, 1989; Resnick, 1987).

A strong critic of the generalizability of thinking skills, McPeck (1981) argued that each field of inquiry has its own particular epistemology. Wasserman (1989) made a useful distinction between "some acts of thinking which can be observed in logical, problem-solving patterns of behaviors" from others which "come out of highly intuitive, almost magical, insights or intuitive leaps." Empirical studies of higher order thinking by scientists solving problems (Larkin, et al., 1980), expert writers composing an essay (Bereiter & Scardamalia, 1982; Flower & Hayes, 1980), social scientists developing proposals, and skilled technicians repairing equipment (de Kleer & Brown, 1980) all show that certain kinds of strategies recur. The expert reconstructs the problem in new forms, examines the logic of proposed solutions, anticipates the implications, makes modifications, and reasons by analogy to similar situations.

The literature is replete with lists of the steps of problem solving derived by logical analysis. Most owe their origins to Dewey's "five logically distinct steps" of the problem solving process: "1) a felt difficulty; 2) its location and definition; 3) suggestion of possible solution; 4) development by reasoning of the bearings of the suggestion; and 5) further observation and experiment leading to its acceptance or rejection, that is the conclusion of belief or disbelief" (Dewey, 1910, pp 72-77). The resilience of Dewey's theory was attested by Guilford. In his analysis of creative production, Guilford (1965, p. 8) compared several then recent theories and concluded that "the most remarkable thing about them was their similarity to that of Dewey."

The same assessment might be applied to analytical frameworks developed more than two decades later. Rankin and Hughes (1987) suggested that "the major thinking processes have much in common." Their framework of thinking skills identified a generic process with seven steps or stages that a person goes through when he or she thinks: 1) focusing, 2) gathering information, 3)organizing information, 4) analyzing information, 5) generating ideas, 6) synthesizing, and 7) evaluating and applying. As Resnick observed, "The search for general learning skills is not a new one.... (but) Psychological research gives us reason to believe in the reality of general skills for learning as well as reason to maintain a degree of skepticism" (Resnick, 1987, p. 16).

Resnick's definition of higher order skills provides a fine complement to so many other definitions which emphasize the component processes. Her comprehensive yet succinct definition calls attention to the attributes of the problem situation and the reactions of the thinker as well.

> *Higher order thinking involves a cluster of elaborative mental activities requiring nuanced judgement and analysis of complex situations according to multiple criteria. Higher order thinking is effortful and depends on self-regulation. The path of action or correct answers are not fully specified in advance. The thinker's task is to construct meaning and impose structure on situations rather than to expect to find them already apparent* (Resnick, 1987, p. 44).

The Problem of Measurement

All 50 states use nationally normed standardized tests of basic skills (Cannell, 1988). But the major criticism of these tests, as well as those constructed by teachers, is that they emphasize recall of declarative or procedural knowledge, not the level or quality of student's thinking (Fleming & Chambers, 1983; Morgenstern & Renner, 1984). Many experts on educational testing and policy attest that tests serve a causal function in shaping instruction. Indeed, measurement driven instruction is no secret (Airasian, 1988; Brown, 1989; Darling-Hammond & Wise, 1985; Madaus, 1988; Meisels, 1989; Popham, 1987).

Nickerson (1989) cites two compelling reasons for testing thinking: one is to determine how effectively thinking is being taught, the second is to ensure that it is. Several states have mandated both the teaching and testing of higher-order cognitive skills in their schools, but the mandate outstrips the availability of appropriate measuring devices if not knowledgeable practice as well. If tests are to be widely used, they have to be easily administered and easily scored, that is, efficient and reliable. Operationally, these requirements translate into the use of highly structured, usually multiple choice items with single-right-answer formats. But as critics have pointed out, problems in the real world often defy simple structure and single solutions.

Toward A Solution

Clearly a dilemma exists between the implications of measurement driven instruction and the inherent limitations of multiple choice testing. Wiggins (1989), persuaded by the incentives of teaching for the test, has suggested that we "design and then teach to standard-setting tests so that practicing for and taking the tests actually enhances rather than impedes education." Some would applaud his impatience, but others voice extreme caution:

> *"...if we believe that thinking is a set of very complex, sophisticated, and interrelated functions; that some acts of thinking are logical and others highly intuitive; that creative thinking rarely follows an orderly pattern; that there are degrees of creative and problem-solving capability that are not constant; that there is variation of performance*

> *within individuals; and that in spite of many seminal tomes written on the topic of thinking, much ambiguity remains with respect to "good thinking," we are likely to need much, much more work before we dare to enter the realm of measurement. And we ought to be very, very wary of those enthusiasts who would lead us to measurement before the debate has been settled" (Wasserman 1988, p. 368).*

This researcher decided some years ago to err on the side of impatience, developing and pilot testing efficient paper and pencil measures, while creating simulated challenges for solution by small groups, and protocols for intensive case studies of individual learners as they engage more complex and extended problems (Shann, 1976). While all of these approaches continue to have their advantages and disadvantages, the economy and efficiency of the paper and pencil approach were very important considerations for this research on urban middle schools. The previously piloted paper-and-pencil tests would have to be revised and up dated, but at least they would provide a start. The group challenges and individual protocols tapped more complex, higher order cognitive skills but their use required intensive observation of extended cognitive tasks and required considerable judgement in scoring. Especially in the disadvantaged urban schools which constituted the sample for the present study, it was important to know if students could at least analyze and evaluate the simpler problem scenarios which were presented in the paper-and-pencil tests.

The instructional goals which the original tests were designed to measure were formulated as behavioral objectives--that the student would:

- identify and define the problem;
- decide what information and investigations were needed in order to find some solution to the problem;
- determine what needed to be done first
- decide what was the best way to obtain the information needed;
- detect flaws in data gathering procedures or errors in the data themselves;
- organize, analyze, and interpret the data;
- suggest some solution to the problem based on the data;
- suggest ways to implement the solution (Shann, 1976, p. 65).

The strategy used to measure these outcomes was to develop scenarios portraying realistic, everyday problems which might hold high interest for the middle school age group. Sets of items were written which were context-dependent. The tasks required critical thinking and scientific reasoning rather than the recall of factual information. The science/mathematics orientation of the tests would provide a complement to the assessment of more intuitive, creative production which the writing sample was to afford. In addition, the effort to assess higher order thinking in scientific problem solving was consistent with the national agenda set by "the education president" to make American students best in the world in their performance in mathematics and science (Bush, 1990).

The test content would also be consistent with recommendations made by the American Association for the Advancement of Science in their landmark report, *Science for All Americans* (1989). In particular, the skills measured by the test would target what practices science teachers were urged to stress with middle school students:

- Start with questions that are interesting and familiar to students.
- Engage students actively in collecting, sorting, sketching, interviewing, using equipment, and systematically observing behavior.
- Concentrate on the collection and use of evidence.
- Insist on clear, effective oral and written communication.
- Use a team approach.
- Do not separate conclusions from methods, knowing from finding out.
- De-emphasize the memorization of technical vocabulary in favor of understanding important concepts.

The New, Revised Measure of Higher Order Thinking

The measure of higher order thinking in its original form was given in two parts, the first containing 30 items on five scenarios, the second containing 16 items on three scenarios. The reading difficulty of the test was targeted for administration with students in grades 4 through 8 (Shann, 1976, 1977a, 1977b). Used in the national evaluation of the curriculum called "Unified Science and Mathematics for Elementary Schools" at 40 schools in 18 states, the original test yielded scores which showed predicted increases in skills over grade level, and was further validated against teacher judgements of their students' abilities in problem solving. Internal consistency reliability for the 46-item test using Hoyt's estimate was .86. Shortened versions maintained respectable levels, .79 for a 30-item test and .74 for a 16-item test.

The test was revised according to the recommendations made in the previous study (Shann, 1976); questions with poor item statistics were dropped; new items were created, but the general format context-dependent items centered around a realistic scenario was retained. In addition, the language was updated. Children's names and surnames were varied to reflect the predominantly black and Hispanic student enrollments in the sample schools of the present project. The new test was named TOPS, or *Test of Problem Solving*. It contained 31 items on five scenarios and was pilot tested in the same schools which had generously allowed their sixth grade classes to take pilot versions of the student questionnaire. At the end of the pilot sessions, students were asked which scenarios were most interesting, and which were least interesting. Since class time and students' attention spans were among our concerns, we wanted to put the high interest items first, and the low interest and perhaps more difficult items last. The students' reactions guided the order of placement of the five scenarios chosen for the final, revised edition.

The revised edition of TOPS is shown in Appendix C. It contains five items each on the following topics: "Pets in the Classroom;" "Bike Transportation;" "The Window Sill Garden;" and "A Busy Corner." The final set called "A Classroom Temperature Chart " contains six items. As was the case with the student questionnaire, Spanish and Vietnamese translations of TOPS were obtained, in order to maximize the rate of useful returns.

Administration of TOPS

TOPS was administered in each school during the students' science periods. Since these times varied, we were not able to collect data from the entire school at one sitting, as had been the case with the student questionnaire. Instead, the instruments were delivered to the schools and administered by teachers during the days allocated for testing with TOPS. Optical scan answer sheets, precoded with the student's name and six-digit identification code, were given to the students along with the TOPS booklet. The answer sheet reflected the familiar format used by the school for many other testing purposes.

While the number of usable returns was substantial, at 972, it was significantly lower than 1583, the number of usable returns from the student questionnaire. Much of the attrition was attributed to one school which changed its procedure for gaining parents' or guardians' permission for testing. In the case of the student questionnaire, which was administered first, the school, using our suggested form letter, notified parents that administration had been scheduled, and if they did not wish their sons or daughters to participate, they should notify the school. For the administration of TOPS, the principal decided to collect signed permissions from parents and allow only those students who returned slips to take the test. Other factors contributing to the attrition were complaints from teachers that the test was "too hard" for the students, and those groups having trouble would not respond. Casual inquiry determined that the same response was typical for participation on other test measures.

We had also requested that teachers rank order their students in these classes with respect to the students' problem solving skills; we asked that the teachers do this as their students were taking the test. Two schools forgot to give the rating instructions to the teachers, and the data could not be reclaimed at a later time. Intrusions on the schools' schedule had become more and more numerous, especially for testing, and additional requests of teachers were not advised.

Scoring

The optical scan answer sheets were scored by the Boston Public School System's Bureau of Research. Item responses and the six-digit code were provided on tape to the principal investigator. The total number of usable returns was 972; the distribution of usable responses by school was: School 1--496, School 2--127, School 3--95, and School 4--254.

Technical Characteristics of TOPS

Several technical aspects were studied to appraise the psychometric qualities of TOPS: item analysis, subtest analysis, reliability and validity. But even before results of these analyses are reported, it is instructive to note the shape of the distribution of total correct scores for the 972 taking TOPS. Shown in the left half of Table 5.1, the frequency distribution of TOPS scores is symmetrical, suggesting an underlying normal curve.

Item Analysis

Item analysis included the determination of item difficulty and item discrimination levels, as well as item-total correlations using serial and point biserial methods. The difficulty levels and discrimination indices are reported in the right half of Table 5.1. The difficulty levels represented a broad range, the easiest answered correctly by 91% of the students, and the most difficult answered correctly by only 23%. The wide range of item difficulty levels are needed to yield a normal distribution of total test scores, although there was no determination in advance to promote this kind of score distribution. Discrimination indices ranged from .17 to .68. In general, the low values were observed for the more difficult items. Most discrimination indices were moderate or better, ranging from .50 and up.

Subtest Analysis

Results of the analysis of five subtests in TOPS are summarized in Table 5.2. Each of the five subtests showed moderate to moderately high internal consistency reliability coefficients as determined by Cronbach's alpha. The values ranging from .50 to .67 are considered quite good for 6- and 7-items subtests. The means reported in Table 5.2 for each subtest indicate that students did best on the first and second sets of items based on the scenarios for Pets in the Classroom and Bike Transportation respectively. These were so placed because students in the pilot test rated them of highest interest. The pattern of decreasing means by subtest may indicate increasingly more difficult items, or scenarios of lower interest, or fatigue, or some combination of these. The increasing standard deviations over subtests indicate that student performance became more variable as students proceeded through the test.

TABLE 5.1

Distribution of Total Scores on TOPS and Item Analysis Data for TOPS Items

Descriptive Statistics				Item Analysis		
Score	n	Percent	Cumulative Percent	Item #	Difficulty Level	Discrimination Index
1	1	.1	.1	1	.89	.28
2	2	.2	.3	2	.88	.26
3	2	.2	.5	3	.64	.57
4	5	.5	1.0	4	.86	.31
5	9	.9	2.0	5	.58	.47
6	17	1.7	3.7	6	.63	.33
7	10	1.0	4.7	7	.71	.51
8	21	2.2	6.9	8	.69	.35
9	32	3.3	10.2	9	.65	.43
10	28	2.9	13.1	10	.35	.23
11	48	4.9	18.0	11	.91	.27
12	48	4.9	22.9	12	.54	.50
13	35	3.6	26.5	13	.71	.52
14	47	4.8	31.4	14	.59	.55
15	42	4.3	35.7	15	.27	.19
16	43	4.4	40.1	16	.66	.57
17	53	5.5	45.6	17	.49	.46
18	49	5.0	50.6	18	.45	.48
19	56	5.8	56.4	19	.62	.61
20	66	6.8	63.2	20	.47	.45
21	54	5.6	68.7	21	.63	.60
22	69	7.1	75.8	22	.72	.61
23	60	6.2	82.0	23	.45	.40
24	46	4.7	86.7	24	.50	.51
25	49	5.0	91.8	25	.81	.58
26	28	2.9	94.7	26	.63	.57
27	24	2.6	97.1	27	.23	.17
28	19	2.0	99.1	28	.72	.59
29	6	.6	99.7	29	.31	.18
30	2	.2	99.9	30	.54	.59
31	1	.1	100.0	31	.59	.68

TABLE 5.2
Descriptive Statistics and Alpha Reliability Coefficients for TOPS Subtests

Name of Subtest	X	s	Mdn	# items	Alpha
Pets in the Classroom	4.42	1.38	5	6	.54
Bike Transportation	3.77	1.45	4	6	.50
Window Sill Garden	3.04	1.67	3	6	.60
A Busy Corner	3.11	1.72	3	6	.61
Classroom Temperature	3.38	1.91	4	7	.67
TOTAL TEST	17.72	5.95	18	31	.84

Reliability

Reliability for the total test as determined by Cronbach's alpha was .84. This figure compares very favorably with internal consistency reliability coefficients ranging from .76 to .83 which have been reported for the Watson-Glaser Critical Thinking Test (1980). While it would have been desirable to establish test-retest reliability for TOPS, a second administration with TOPS was not as important as gathering additional kinds of information on school effectiveness. Due to the schools' extreme reluctance to consent to additional testing, compounded by the difficulties of additional test development, equivalent forms reliability was not attempted; it was beyond the scope of the project.

Validity

Validity for the TOPS was established primarily through content analysis, and to a certain extent through construct validation. (If an appropriate criterion were readily available for the determination of concurrent or predictive validity, the development of TOPS would not have been needed.) Several opportunities were used to gather critiques of TOPS from graduate students in science and mathematics, from middle and secondary school teachers of these and other subjects, and from professors of education, psychology, and related disciplines.

Individuals were asked to assess the face validity of items and to review the items in relation to the expressed objectives measured by the test. Reviewers affirmed that the test items measured the stated objectives, and the earlier inquiry regarding what the test appears to be measuring produced the following kinds of responses: "the logic of arguments, the validity of experiments; interpretation of graphs; syllogistic reasoning; scientific reasoning; appropriate order of steps; establishment of priorities; appropriateness of hypotheses; design of experiments; and evaluation of evidence; " but also "reading comprehension and endurance." The graduate student reviewers, freer with their personal reactions than the practicing teachers or professors, remarked: "You have to think about these!"; "The answers are not immediately obvious; " and "What *is* the right answer to this one?" And indeed, in some cases best, rather than plausible, answers were keyed.

Teacher ratings of their students' performance on tasks of complex problem solving were to have been used as the most important criterion for judging the validity of TOPS. As had been done with the original test (Shann, 1976), and indeed by Binet in his validation of the first intelligence test (1904), teachers were asked to rate their students after having had opportunities to observe their processes and performance at close hand over several months. The rating instructions for teachers are given in Appendix C.4. Unfortunately, two of the schools forgot to ask their science teachers to provide their ratings when their students were taking the instruments. The school with the largest number of students and the lowest performing students did comply with the request, but some of the teachers invented their own scales, rating the students from one to three, instead of rank ordering from one to "n", "n" being the number of children in the class.

It was predicted that student performance on TOPS would increase over grade level. The implications of this finding for the validity of TOPS are less clear in light of recent evidence that higher order skills are not strictly linear. But the more important limitation of this evidence for the present study is the fact that the student populations change from year to year, especially from grade six to grade seven, when more able students leave the middle schools to enter the examination schools which are the most prestigious in the system. There is lesser but still persuasive evidence that lower achieving students are dropping out, truant, or not taking the tests at the eighth grade level, when one of the schools shoots up in its measures of student performance. These population shifts and the need for more careful clarification make the grade to grade differences in TOPS scores less persuasive as evidence for the construct validity of TOPS.

Stepwise Multiple Regression Analyses Predicting TOPS Scores

The matrix of correlations among TOPS scores, other test scores, grades, and student questionnaire responses was studied for associations. A part of this matrix is reproduced in Table 5.3, along with means and standard deviations of the selected variables. All of the achievement data, i.e., test scores and grades, plus two factors derived from the students' responses to items on the questionnaire about teaching practices were entered into stepwise regression, with pairwise deletion of missing data. Only the test scores made significant contributions to the explanation of variance in TOPS scores. A second stepwise regression analysis was run using the test scores in combination with school and grade to predict TOPS. The latter two factors were coded as dummy variables and entered as blocks for each factor. Results of this analysis are shown in Table 5.4.

MAT-Reading test scores explained the highest amount of variance in TOPS scores, fully 37%. MAT-Mathematics subtest scores contributed another 9% to explained variance, bringing the total for the two predictors to an R^2 of .45. Not being in School 1, the lowest achieving of the four schools, contributed another 2% to explained variance. While additional school and grade placements made additional contributions which were statistically significant, the information was of no practical significance, adding only 1% or less to explained variance. The CRT in mathematics

TABLE 5.3

Means, Standard Deviations, and Correlation Matrix for Achievement Data

Test	X	s	n	TOPS	CRT	MAT-Math
TOPS	17.72	5.93	972			
CRT-Math	57.71	20.21	1145	.533		
MAT-Math	647.65	39.09	1265	.590	.764	
MAT-Read	642.95	45.81	1279	.610	.534	.606

TABLE 5.4

Stepwise Regression Analysis Predicting TOPS Scores

Predictor Variable	b	Beta	T	R^2 after entry
MAT-Reading	.050	.382	11.81****	.37
MAT-Mathematics	.039	.257	5.67****	.45
School 1	-2.709	-.223	-6.31****	.47
Grade 6	-1.247	-.102	-4.00****	.48
School 2	-1.667	-.123	-3.68****	.49
School 3	-1.560	-.090	-2.83**	.49
CRT-Mathematics	.028	.095	2.19*	.49

Constant: = - 39.142
$R^2 = .494$, $p < .0001$ ($R = .703$)

*$p < .05$
**$p < .01$
***$p < .001$
****$p < .0001$

added virtually no new information because it correlated highly (.76) with the MAT mathematics subtest, which took their shared variance first.

While some mathematics skills are apparent in TOPS, it is much more a test of reasoning. The last of the five subtests, "A Classroom Temperature Chart", emphasized the interpretation of numeric information from a chart, but it also required reasoning. Only three other items on the test required interpretations from graphs and charts; the others required thinking and reasoning which dealt with other content.

If the TOPS is a measure of higher order thinking and critical reasoning, the fact that it shares 37% of its variance in common with a measure of reading comprehension is consistent with explanations of the components of critical thinking offered by previous researchers. In reviewing the literature, Henderson (1972) found that the two major components of critical thinking are understanding the meaning of words in relation to the context, and evaluating whether the conclusion is appropriate. Folman and Lowe (1972) conducted a study of critical reading and thinking skills of fifth and twelfth graders. They found that students with a strong language ability scored high on measures of critical thinking.

In separate reviews of the literature Gray (1969) and Saadeh (1969) found that the ability to think critically can be taught effectively to people two years of age and older. Resnick would concur. "The most important single message of this body of research is that complex thinking processes--elaborating the given material, making inferences beyond what is explicitly presented, building adequate representations, analyzing and constructing relationships--are involved in even the most apparently elementary mental activities. Children cannot understand what they read without making inferences and using information that goes beyond what is written in the text.... (Resnick, 1987, p. 45).

The MAT total scale score in mathematics which was used as a predictor contributed an additional 9% to explained variance. As a measure of "mathematics concepts, mathematics problem solving, and mathematics computation," the subtest and TOPS would be expected to share some variance.

Whether the TOPS goes beyond the scope of tests of basic skills, like the MAT, to higher level thinking, critical reasoning, and more complex problem solving remains to be studied. The TOPS was developed to measure several process components, in a scientific context, which are most frequently associated with critical thinking, like the ones on Skinner's list: the ability to recognize a problem, formulate an hypothesis, test the hypothesis, gather data, analyze data, reject or accept the hypothesis, and draw conclusions (Skinner, 1976). However, evidence for the validity of TOPS rests presently with content validation, and to a certain extent with construct validation of predicted components.

Future validity studies with TOPS should include the teacher ratings and scores from the intensive case studies of individuals with carefully developed protocols. This would constitute an intensive effort with a sample of 30 or more if the individual assessments are included, however, the validation of an efficient, highly reliable measure of higher order skills such as TOPS would provide a model for the development of the "standard-setting" tests which Wiggins (1989) has called for. If measurement-driven instruction is inevitable, then practicing for and taking the tests could enhance rather than impede education.

Multiple Regression Analysis Using Selected Variables to Predict TOPS

If students can be taught how to address TOPS-like problems more successfully, then analysis of the contribution of CRT-Mathematics scores to explained variance in TOPS scores might suggest a way to develop instruction. Of all the achievement measures available to the study, the CRT is the only one said to provide both a good fit to the actual curricular goals held by the school (unlike the MAT subtests), and a known basis for evaluation (unlike final grades). In the model of mastery learning with criterion referenced testing, teachers might be helped to target important and complex thinking processes and to guide students in practicing these strategies. If the CRT in mathematics includes some measures of critical thinking and problem solving, then indirectly at least, the benefits of the staff development strategy with teachers would be supported by the data. Assuming some of the teachers in the sample were already doing this, their students would score well on the CRT in mathematics as well as on TOPS.

TABLE 5.5

Multiple Regression Analysis Specifying Order of Entry of Variables to Predict TOPS

Predictor Variable	b	Beta	T	R^2 after entry
CRT-Mathematics	.029	.100	2.28^{**}	.28
MAT-Mathematics	.040	.262	5.78^{****}	.36
MAT-Reading	.050	.379	11.73^{****}	.46
Grade 6	-.874	-.072	-2.35^{**}	.47[a]
Grade 7	.721	.056	1.84	
School 2	-1.676	-.124	-3.70^{**}	.50[a]
School 3	-1.588	-.092	-2.89^{**}	
School 1	-2.708	-.223	-6.32^{****}	

[a] Dummy variables for grade and school were entered as blocks.

Constant: = - 39.819

$R^2 = .497$, $p < .0001$ ($R = .705$)

$^{*}p < .05$
$^{**}p < .01$
$^{***}p < .001$
$^{****}p < .0001$

Results of the multiple regression analysis predicting TOPS scores with forced order of entry of predictor variables are given in Table 5.5. The CRT in mathematics was entered first; it explained 28% of the variance in TOPS scores, as opposed to 37% when the MAT in reading was chosen first in the stepwise regression. The MAT in mathematics which was entered second explained an additional 8% over the CRT in mathematics. But the MAT in reading still explained an additional 10%, even when entered third. The factor of grade provided additional variance which was statistically significant but of little practical significance--only 1%. The school factor which was entered last contributed an additional 3% to explained variance. Students were at a disadvantage not to be in School 4, the highest achieving school on TOPS (and overall.)

Results of this multiple regression analysis with forced order of entry of variables are hardly conclusive, but they do suggest that direct instruction can make a difference in students' success in critical thinking and problem solving. In addition, the results clearly endorse the importance of language, and not just mathematical reasoning, in higher order thinking.

TOPS Scores as Predictors of Final Grades

A final strategy used to study the validity of TOPS was to see if TOPS scores might explain additional variance in student achievement, beyond what could already be accounted for by MAT-Reading and MAT-Mathematics scores. Final grades were the only available measures of student achievement besides the test scores which had already been studied. Several regression analyses were run using final grades in reading, English, mathematics, science and social studies separately as the criterion measure. In each case, the MAT reading and mathematics scores were forced into the equation first, then TOPS scores were added to see if TOPS could explain additional variance.

The multiple R's for predicting final grades using both MAT scores were .36 for reading, .50 for English, .57 for mathematics, .39 for science, and .45 for social studies. When TOPS scores were entered in each of the equations, the multiple R's did not increase more than one or two points. As a predictor of final grades, TOPS could add nothing to what the MAT scores already explained for those measures of achievement.

Summary and Discussion

Highly critical of the education being offered to students in middle grades in many of this country's schools, the Carnegie Council on Adolescent Development charged that: "Nowhere is this failure more evident than in the development of American young adolescents' critical reasoning and higher order thinking." Under various labels, exhortations to teach for "critical thinking," "higher order cognitive functioning," and "complex problem solving," have been voiced for decades. What has changed dramatically is the way we gauge our society's productivity. No longer are we in an industrial age, but rather an age of information technology, in which many people need to make a living by thinking, and not by rote assembly. Educational goals and objectives previously reserved for the elite are now being held for the masses.

Fueling this renewed interest in teaching for higher order thinking skills is "the single most important message of modern research on the nature of thinking" (Resnick, 1987, p. 8) that the kinds of processes traditionally associated with higher order thinking are not limited to advanced levels of development. In fact the term "higher order" skills is fundamentally misleading, because it suggests that lower order skills need to come first in a very linear fashion. The growing body of research in cognitive science on the acquisition of thinking skills particularly in reading, but also mathematics, attests to this finding. Long years of drill on the "basics" before thinking and problem solving are required can no longer be justified.

Yet, higher order thinking and critical reasoning are not being taught extensively, probably because teachers are unprepared to teach them well. Pervasive use of standardized tests of basic skills as the primary vehicle for accountability no doubt contributes to the problem. Despite the reason, the outcome is well documented; schoolchildren in this country do learn large amounts of information, but they do less well on what are variously called the "higher order skills" or the metacognitive skills--how to analyze, synthesize, and evaluate that information for their own use.

Defining higher order cognitive functioning is the first problem which writers on the topic must address. Disciplinary perspectives often color their choice of terms;

philosophers promote logical thinking and critical reasoning; developmental psychologists point to metacognition; educators advocate teaching study skills and real life problem solving; cognitive scientists focus on cognitive strategies and heuristics for problem solving. Resnick's definition of higher order skills provides a fine complement to so many other definitions which emphasize the component processes. Her comprehensive, yet succinct, definition calls attention to the attributes of the problem situation and the reactions of the thinker as well.

> *Higher order thinking involves a cluster of elaborative mental activities requiring nuanced judgement and analysis of complex situations according to multiple criteria. Higher order thinking is effortful and depends on self-regulation. The path of action or correct answers are not fully specified in advance. The thinker's task is to construct meaning and impose structure on situations rather than to expect to find them already apparent* (Resnick, 1987, p. 44).

If the definition of higher order thinking is problematic, the measurement of higher order thinking is even more so. All 50 states use nationally normed standardized tests--of basic skills, but these tests emphasize recall of declarative or procedural knowledge, not the level or quality of student's thinking. Two compelling reasons for testing thinking are first, to determine how effectively thinking is being taught, and second, to ensure that it is. Several states have mandated both the teaching and testing of higher-order cognitive skills in their schools, but the mandate outstrips the availability of appropriate measuring devices if not knowledgeable practice as well.

The present project undertook the challenge of developing an instrument to measure higher order thinking in the context of high interest, realistic problems requiring scientific reasoning. The effort began with an existing instrument, previously developed by the principal investigator with support from the National Science Foundation. The test was revised according to the recommendations made in the previous study (Shann, 1976); questions with poor item statistics were dropped; new items were created, but the general format context-dependent items centered around a realistic scenario was retained. In addition, the language was updated. Children's names and surnames were varied to reflect the predominantly black and Hispanic student enrollments in the sample schools of the present project.

The new test was named TOPS, or *Test of Problem Solving*. It contained 31 items on five scenarios: "Pets in the Classroom;" "Bike Transportation;" "The Window Sill Garden;" and "A Busy Corner;" and "A Classroom Temperature Chart." Both Spanish and Vietnamese translations of TOPS were obtained. The test was administered during students' science periods; usable returns were collected from 972 students.

Several technical aspects were studied to appraise the psychometric qualities of TOPS: item analysis, subtest analysis, reliability and validity. Item analysis included the determination of item difficulty and item discrimination levels, as well as item-total correlations using serial and point biserial methods. The difficulty levels represented a broad range, the easiest answered correctly by 91% of the students, and the most difficult answered correctly by only 23%. Discrimination indices ranged from .17 to .68.; most were moderate or better, ranging from .50 and up. Each of the five subtests showed moderate to moderately high internal consistency reliability coefficients as determined by Cronbach's alpha. The values ranging from .50 to .67 are considered quite good for 6- and 7-items subtests. Reliability for the total test, as determined by Cronbach's alpha, was .84.

Validity for the TOPS was established primarily through content analysis. Several opportunities were used to gather critiques of TOPS from graduate students in science and mathematics, from middle and secondary school teachers of these and other subjects, and from professors of education, psychology, and related disciplines. Construction validation was also addressed through the use of multiple regression analyses to study skill in problem solving in relation to reading comprehension, mathematics concepts, mathematics achievement, and grade level. The results clearly endorse the importance of language and not just mathematical reasoning in higher order thinking.

CHAPTER 6

TEACHING BEHAVIORS WHICH PROMOTE HIGHER STUDENT ACHIEVEMENT

The target of the present research has been school effectiveness and not teacher effectiveness. However, the study afforded the opportunity to ask teachers about the instructional practices they employ in their classrooms. While a vast literature has emerged on effective teaching techniques, most of this knowledge base has been gained from studies of elementary, and to a lesser extent, secondary schools. Since lesser attention has been paid to middle schools, we decided to include in the teacher questionnaire a brief section on teaching practices which operate at the classroom level. If the principal focus of the study had been teacher effectiveness, direct observation would have been used to document teaching practices, but this was beyond the scope of the present study and secondary to its main thrust.

Advances in research on school and teacher effectiveness started to come about when researchers abandoned atheoretical approaches typified by input-output studies of static variables in the school environment and began paying more careful attention to the dynamic processes which operate in schools and in classrooms. In addition, useful distinctions were made between school level variables such as management practices, staff development, scheduling, grouping, and reward systems, in contrast with classroom level behaviors such as how teachers organize and manage their classrooms, how they design instruction, and what teaching practices they use for what purposes. Again, the latter are the focus of the present chapter.

Evidence for Productive Teaching

Effective schools start with effective teachers--those who have a high sense of efficacy and responsibility for their teaching. They set high expectations for their students and hold students accountable for learning. The evidence for the effectiveness of these classroom level behaviors is even more striking for traditionally low achieving students. Within such businesslike, task-oriented environments where rules of conduct and academic procedure are clearly explained, effective teachers use well organized, well prepared lessons which engage students in more time on task, especially in greater amounts of academic learning time, than those teachers who are less effective in improving student learning. Newmann (1987) argued that the most immediate and direct determinant of student achievement is student engagement, which in turn is most directly affected by the quality of interaction that students have with teachers.

In his recent survey of research on instructional methods, Walberg (1990) noted that almost eight thousand field studies and surveys of teaching and learning have been reported in the past decade. He employed several useful distinctions in evaluating so vast a literature. First, acknowledging the influence of psychological research on teaching, he cited the evidence for the enormous effects of cues, engagement, corrective feedback and reinforcement on student learning. Then, he discussed methods and patterns of teaching that a single teacher can accomplish without unusual arrangements or equipment, or school level decisions. Walberg's review also addressed systems of instruction which require special planning, student grouping, materials, and equipment, as well as techniques whose effects are unique to particular subjects or types of students.

In Walberg's classification, the *psychological elements* of cues, engagement, feedback and reinforcement undergird many effective *teaching methods* such as the use of advance organizers; pretesting; setting clear, high expectations; returning homework with comments; and sequencing instruction based on learning hierarchies. *Patterns of teaching* represent a more inclusive formulation which integrates the psychological elements and the methods of teaching.

Patterns of Teaching Examined in the Present Study

In the present study, a group of Likert-type items was framed to inquire about the individual teacher's frequency of use of various methods. Teachers offered self-reports on each of 16 instructional practices by circling the appropriate number on a five-point scale from "1" equaling "a lot," to "5" equaling "almost never." These items are shown in Appendix B, Section 19, A through P of the Teacher Questionnaire. The items were reverse scored, so that higher numbers represented greater frequency of use.

Principal components factor analysis was applied to the 16 items to determine if a smaller number of clusters of instructional practices might be used to represent patterns of teaching, consistent with the usage adopted by Walberg. An established convention for the sample size required to use factor analysis is to have a number of respondents which is ten times the number of items on the scale, or in this case, 160 respondents. Since the useable database for this analysis numbered only 92 teacher questionnaires, it was particularly important to examine the distribution of eigenvalues and percentages of variance explained by each factor.

Results of this factor analysis are presented in Table 6.1. Included are the factor names, eigenvalues, percentages of explained variance, items loading .50 or more on each factor, and their weights. Five factors emerged with eigenvalues greater than 1.0. Together they accounted for 66.0% of the explained variance. Despite the relatively small sample, the analysis was judged to be appropriate on several bases: the eigenvalues and percentages of explained variance remained at substantial levels after the first and later factors were extracted, i.e., the values did not drop precipitously after the first factor; the factors were very "clean" in that the items loaded on each factor with weights usually in excess of .60 or not at all, i.e., close to .00; and the high-weighted items formed logical, cohesive clusters. They were named as follows:

1. Laboratory/Demonstration
2. Direct Teaching
3. Field Trips/Class Projects
4. Small Groups/Student Led
5. Workbooks/Individual Assignments

Factor 1, on the use of Laboratory/Demonstration techniques, emerged as a strong, clear first factor; but teachers who used these techniques were in the minority. It could not be assumed that teachers did not know how to use these techniques, or that they were not disposed to using them, since laboratory facilities were virtually nonexistent in the sample schools. While a resourceful teacher could employ demonstrations, it would have been all the more difficult to turn a conventional classroom into a laboratory for a single class period.

The second factor, entitled "Direct Teaching," included items on "teacher lecturing to the whole class," and "teacher leading discussion among whole class,"

TABLE 6.1

Results of Factor Analysis of 16 Teaching Practices Self-Reported According to Frequency of Use

Factor Number & Name	Eigen-value	Pct of Var	Cum Pct	Items on the Factor	Weight
1: Laboratory/Demonstration	3.70	23.1	23.1	D. Teacher giving demonstration with equipment	.69
				I. Students measuring, collecting data	.54
				K. Students working in laboratories	.81
				N. Students walking about the room	.65
2: Direct Teaching (Whole class lecture/discussion)	2.50	15.6	3.38	A. Teacher lecturing to the whole class	.83
				B. Teacher leading discussion among whole class	.81
				M. Students working all on the same lesson	.71
3: Field Trips/Class Projects	1.72	10.7	49.5	J. Students creating things	.63
				L. Students taking supervised field trips	.75
				O. Whole class working together	.54
				P. Students working on a project of their choice	.71
4: Small Groups/Student Led (Teacher visiting groups)	1.46	9.1	58.6	C. Teacher visiting small groups within the class	.74
				E. Students giving presentations to the class	.50
				F. Students discussing problems in small groups	.73
5: Workbooks/Individual Assignments	1.18	7.4	66.0	G. Students writing papers, stories, assignments	.68
				H. Students filling in workbooks or exercise sheets	.73
				I. Students measuring, collecting data	.56

which were weighted .83 and .81 respectively. Walberg termed this pattern "explicit teaching," which he noted was "traditional or conventional whole-group teaching done well." Others have called it "process-product teaching," "active teaching," or "effective teaching" (Gage, 1984; Medley, 1983; Good & Brophy, 1985; Shulman, 1986). Under any of these names, direct teaching includes rapid presentation of new content in small steps, guided student practice with close monitoring by the teacher, and regular review with corrective feedback and instructional reinforcement.

The next three factors emphasize student learning activities which are fostered by the teacher. The first of these is Factor 3 on the use of "Field Trips/Class Projects," in which students create things, working on a project-centered activity, but the work is not done in isolation; rather it may involve the whole class, and it is supervised. The items loading on Factor 4, entitled "Small Groups/Student Led," emphasize activities in which students work in smaller groups, but again the activities entail responsibility to others for discussion and presentation of information, as well as supervision by the teacher. Both of these factors, 3 and 4, are qualitatively different from Factor 5, on use of "Workbooks/Individual Assignments" the latter including student activities which involve no interaction with other students or the teacher; they are done independently, in intellectual, if not physical, isolation from others.

Factor scores were created by adding teachers' responses on the items contributing to each of the five factors. The resulting factor scores were used as the dependent variables in subsequent analyses of variance to investigate what differences in teaching patterns corresponded to differences in student achievement.

Teaching Patterns in Relation to Student Achievement

Since effective teaching is at the core of effective schooling, attempts were made in the present study of school effectiveness to associate differences in student achievement with the patterns of instructional behaviors which teachers reportedly use in their classrooms. In the four schools constituting our sample, the vast majority of students had different teachers for different subjects. We were unable to match students and their teachers directly, since we collected the teacher questionnaires coded only by school in an effort to guarantee anonymity and promote a higher return rate. Identification of teachers by which grades and subjects they taught was based on their responses to items in the questionnaire.

Analyses of variance had established that significant differences existed in student achievement data by grade, and by school, for each of following test measures: Metropolitan Achievement Tests (MAT) in Reading and in Mathematics; Criterion Referenced Test (CRT) in Mathematics; and the Test of Problem Solving (TOPS). Interaction effects were also significant for each of these measures.

In an effort to investigate whether the teachers of students in the higher achieving schools employed different teaching patterns, we sought to distinguish among the overall significant main effect for school differences, which school means were significantly different from which other school means. (This had to be done separately by grade level, since school by grade interaction effects were significant. Graphs showing these interaction effects are reproduced in Figures 6.1 through 6.4.) Duncan multiple range tests were used to confirm which pairs of mean differences were significant, and the schools were regrouped accordingly. Thus, for example, the F ratio for school differences in MAT-Reading scores was highly significant ($F=8.00$, $df=3$, $p<.0001$), but this overall difference could be attributed to the difference between the mean for School 2 and those for Schools 1, 3, and 4. For subsequent analysis of the teaching patterns, the teachers were compared in two groups, those in School 2 versus those in Schools 1, 3, and 4.

Not all of the teachers in each school were used in the analyses, only those who reported teaching the subject(s) related to the test at the grade levels where school differences occurred. For each test content area, these teachers who taught the given subject at the grade level in question were pulled from the larger teacher data base for the analysis of differences in teaching patterns which might correspond to the mean differences in student achievement scores for that subject at that grade level. Teachers were grouped by schools in the same combinations which the student achievement data analysis supported, and analyses of variance by school groups were conducted using each of the five teaching factors as dependent variables. Thus, when school differences in student achievement data were significant at a given grade level, teachers were sorted into corresponding groups according to school differences within grade, and their reported teaching practices served as dependent variables in the analysis of variance of differences by school.

Teaching Patterns Associated with Higher MAT Reading Scores

As reflected in Figure 6.1 and confirmed by a Duncan test, sixth-grade students at School 2 averaged significantly higher in the MAT-Reading test than sixth-grade students at the other three schools. The average frequency of use of various teaching patterns among teachers grouped by school to correspond to significant differences in student achievement on the MAT-Reading are presented in Table 6.2. When sixth grade reading teachers in School 2 were compared to their counterparts in Schools 1, 3, and 4, the former reported significantly more frequent use of student led, small group discussion as well as supervised projects involving the whole class. At the seventh grade level, students in Schools 3 and 4 averaged significantly higher in MAT-Reading scores than students in Schools 1 and 2, but no significant differences in the teaching patterns could be found among seventh-grade reading teachers in Schools 1 and 2, versus 3 and 4. However, at the eighth-grade level, students in School 4 scored significantly higher on the MAT-Reading than did students in Schools 1 and 2. Correspondingly, eighth-grade reading teachers in School 4 reported significantly more frequent use of student led, small group discussion than those in Schools 1 and 2.

Teaching Patterns Associated with Higher MAT Mathematics Scores

Duncan tests of the significance of differences in sixth graders' MAT-Mathematics scores among schools showed that students in Schools 4 and 2 scored significantly higher on average than students in School 1, who, in turn, scored significantly higher than students in School 3. The average frequency of use of various teaching patterns among teachers grouped by school to correspond to significant differences in student achievement on the MAT-Mathematics are presented in Table 6.3. Analysis of variance of the instructional patterns reported by teachers grouped in Schools 4 and 2, versus School 1, versus School 3, produced significant differences in the extent to which their students filled in workbooks and exercise sheets and did individual assignments in class. Teachers whose students averaged highest on the MAT-Mathematics had their students using workbooks much less frequently than students in the middle and, in turn, lowest achieving schools.

Analyses of school differences in MAT-Mathematics scores among seventh graders revealed that students showed progressively higher rates of achievement in School 3, versus Schools 1 and 2, versus School 4. When factor scores for teaching behaviors were sorted into these three groups of schools and subjected to analysis of variance, it was found that teachers in the highest achieving school, School 4, said they used significantly more direct teaching, including lecture and discussion with the whole class, while teachers in the lowest achieving school, School 3, reported having their students spend more class time filling in workbooks, exercise sheets, or other individual assignments.

At the eighth-grade level, students in School 1 scored significantly lower on the MAT-Mathematics than students in Schools 2, 3, and 4. Analysis of differences in teaching patterns among teachers sorted according to this grouping of schools showed that teachers in School 1 reported significantly less frequent use of student led, small group work than teachers in Schools 2, 3, and 4.

Teaching Patterns Associated with Higher CRT Mathematics Scores

The average frequency of use of various teaching patterns among teachers grouped according to school differences in student achievement on the CRT-Mathematics are presented in Table 6.4. Analysis of school differences in CRT-Mathematics scores at the sixth grade level produced significant differences between School 1 versus Schools 2, 4, and 3. However, analysis of differences in teaching patterns among teachers grouped in this way produced no significant differences.

At the seventh-grade level, students in Schools 3 and 4 outperformed students in Schools 1 and 2 by a significant margin. Analysis of the teaching patterns reported by the teachers in Schools 3 and 4 versus 1 and 2 revealed that teachers in the higher achieving schools, 3 and 4, employ direct teaching to a significantly greater extent than seventh-grade mathematics teachers in the lower achieving schools.

TABLE 6.2

Significant Differences in Teaching Practices in Relation to Student Achievement on the MAT-Reading

Grade Level	Factor Scores Showing Significant Differences In Teaching Practices	Means for Frequency of Teaching Practices And Number of Teachers Reporting in Schools Grouped by Student Achievement			F
		Lower Achieving Schools	*/*	*Higher Achieving Schools*	
6th grade		Schools 1, 3, 4	vs.	School 2	
	3: Field Trips/Class Projects	10.42 (n=24)		13.25 (n=8)	F=5.66 $p < .02$
	4: Student Led/Small Groups	7.70 (n=27)		10.13 (n=8)	F=4.64 $p < .04$
7th grade	No Significant Differences	Schools 1, 2	vs.	Schools 3, 4	
8th grade		School 1	vs.	Schools 2, 4	
	4: Student Led/Small Groups	7.00 (n=5)		9.75 (n=12)	F=4.16 $p < .05$
		School 3	vs.	School 4	
	5: Workbooks/Individual Assignments	9.11 (n=9)		6.17 (n=6)	F=3.28 $p < .09$

TABLE 6.3

Significant Differences in Teaching Practices in Relation to Student Achievement on the MAT-Mathematics

Grade Level	Factor Scores Showing Significant Differences In Teaching Practices	Means for Frequency of Teaching Practices And Number of Teachers Reporting in Schools Grouped by Student Achievement			F
		Lower Achieving Schools		*/ Higher Achieving Schools*	
6th grade		School 3 vs.	School 1 vs.	Schools 2,4	
	5: Workbooks/Individual Assignments	8.44 (n=9)	7.14 (n=7)	5.75 (n=12)	F=3.15 $p < .06$
7th grade		School 3 vs.	Schools 1,2 vs.	School 4	
	2: Direct Teaching	7.17 (n=6)	5.90 (n=10)	9.43 (n=7)	F=4.10 $p < .03$
	5: Workbooks/Individual Assignments	10.20 (n=5)	6.67 (n=9)	6.67 (n=6)	F=3.06 $p < .07$
8th grade		School 1	vs.	Schools 2, 4	
	4: Student Led/Small Groups	6.20 (n=5)		9.12 (n=17)	F=5.04 $p < .03$

TABLE 6.4

Significant Differences in Teaching Practices in Relation to Student Achievement on the CRT-Mathematics

Grade Level	Factor Scores Showing Significant Differences In Teaching Practices	Means for Frequency of Teaching Practices And Number of Teachers Reporting in Schools Grouped by Student Achievement				F
		Lower Achieving Schools		/	*Higher Achieving Schools*	
6th grade	No Significant Difference	School 1		vs.	Schools 2,3,4	
7th grade		Schools 1, 3		vs.	Schools 3,4	
	2: Direct Teaching	5.90 (n=10)			8.38 (n=13)	F=5.16 $p < .03$
8th grade		School 1	vs. School 2	vs. School 4	vs. School 3	
	2: Direct Teaching	5.80 (n=5)	5.67 (n=3)	9.88 (n=6)	7.17 (n=8)	F=3.41 $p < .04$
	5: Workbooks/Individual Assignments	7.50 (n=4)	5.00 (n=3)	6.17 (n=7)	10.40 (n=5)	F=2.96 $p < .06$

School-to-school differences in CRT-Mathematics scores at the eighth-grade level were significant across the board, i.e., School 1 scored significantly lower than School 2, which scored significantly lower than School 4, which in turn scored significantly lower than School 3. The corresponding analysis of teaching patterns showed that teachers in Schools 1 and 2, the lower achieving schools, reported significantly less frequent use of direct teaching.

Teaching Patterns Associated with Higher Scores on TOPS

As reported earlier, the number of students who were tested with the new Test of Problem Solving varied considerably in each of the four schools. The return rates for students in School 2 and 3 were considered too low to be representative (23% and 35% respectively), so the analysis of school differences was limited to TOPS scores for students from Schools 1 and 4, whose return rates were 67% and 66% of the full time equivalent students which those schools are said to enroll over the academic year. The two-way, school by grade analysis of variance revealed highly significant differences favoring achievement of students in School 4 over students in School 1 ($F=71.98$, $p<.0001$) at all three grade levels. Unlike the analyses of the other achievement test scores, the ANOVA with TOPS produced no significant interaction effect. These results were portrayed graphically in Figure 4.4.

Significant differences were also found in the instructional patterns reported by teachers of mathematics and science in School 1 versus School 4. (Since the TOPS addresses skills for problem solving in the context of science and mathematics, teachers of both subject areas at all grade levels were pulled from the larger sample of teachers in School 1 and 4 for the analysis of reported teaching practices.) The teachers in the higher achieving School 4 reported significantly more frequent use of direct teaching as well as student led, small group work than their counterparts in School 1. The average frequency of use of various teaching patterns among teachers in School 1 versus School 4 which correspond to significant differences in student achievement on the TOPS are presented in Table 6.5.

TABLE 6.5

Significant Differences in Teaching Practices in Relation to Student Achievement on the Test of Problem Solving

Grade Level	Factor Scores Showing Significant Differences In Teaching Practices	Means for Frequency of Teaching Practices And Number of Teachers Reporting in Schools Low versus High in Student Achievement			F
		Low		*High*	
All Grades[a]		School 1	vs.	School 2	
	2: Direct Teaching	6.40 (n=10)		9.18 (n=11)	F=5.58 $p < .03$
	4: Student Led/Small Groups	7.20 (n=10)		10.18 (n=11)	F=5.00 $p < .04$

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[a] Since the School X Grade ANOVA of TOPS scores for students in Schools 1 and 4 produced no significant interaction effects, the same patterns of significant differences between schools in student achievement on TOPS existed for all three grade levels, 6, 7, and 8.

Summary and Discussion

The major thrust of the present study has been to create and validate indicators which can be used to monitor the process of school reform and to gauge whether schools are becoming more effective in various ways. In all of this, school level rather than classroom level variables have been more salient for studying how the norms and culture of the school influence the behavior of its participants. Nonetheless, effective teaching is at the core of effective schooling. While the researchers could not engage the study of teaching through sustained, direct observation, the team decided to include items of the teacher questionnaire which requested self-reports of the frequency of use of a variety of instructional practices. Teachers responded on a scale of one to five, and their scores were transformed so that a "one" indicated "almost never," and a "five" reflected "a lot."

Factor analysis of the responses to the 16 items, as reported by 92 teachers, produced five significant factors with exceptionally clear results and clean loading. The five clusters accounted for 66.0% of the variance in the original data, and the majority of items loaded on only one of the five factors with weights in excess of .70. Factor scores were created by adding those items which weighted .50 or higher on each factor. The five teaching patterns were named as follows: Use of (1) Laboratory/Demonstration; (2) Direct Teaching (lecture and discussion with the whole class); (3) Field Trips/Class Projects; (4) Small Groups/Student Led; and (5) Workbooks/Individual Assignments.

These factor scores were used as dependent variables in the analysis of variance of teaching patterns by school. Instead of examining differences among all four schools *a priori, post hoc* designs were used in which the teachers were grouped by school according to the results of Duncan tests of the significance of mean differences in student achievement among schools, within grade level. Depending on where significant differences existed among groups of schools on the measures of student achievement, teachers of those subjects at each grade level were sorted into the same groupings of schools for the analysis of variance of teaching factor scores. A summary of the evidence for effective teaching practices can be found in Table 6.6.

Factor 1, on the use of Laboratory/Demonstration techniques, emerged as a strong, clear first factor; but teachers who used these techniques were in the minority The factor was not significant in the analysis of any school differences in teaching patterns. However, it is important to note that the physical facilities, material resources, and class schedules which the teachers in the sample had to work with precluded all but heroic efforts to use laboratory and demonstration methods in their teaching on any regular basis.

The limited use of laboratory and demonstration techniques by science and mathematics teachers should be cause for concern. The American Association for the Advancement of Science (1989) in its landmark report, *Science for All Americans*, urges teachers to employ well-tested practices for effective teaching of science, mathematics and technology, chief among them, engaging students in active inquiry and investigation. Teachers should foster varied opportunities for interviewing, surveying, and observing behavior as well as using hand lenses, microscopes, thermometers, cameras, and other common instruments. In addition, the National Science Foundation has sponsored many studies of student inquiry which show that giving students opportunities to design experiments and manipulate science materials fosters positive effects of both a cognitive and affective nature regarding science (e.g., Shann, 1977).

The second factor, entitled "Direct Teaching," included items on "teacher lecturing to the whole class," and "teacher leading discussion among whole class," which were weighted .83 and .81 respectively. It is traditional, or conventional whole-group teaching done well. Practices associated with direct teaching include rapid presentation of new content in small steps, guided student practice with close monitoring by the teacher, and regular review with corrective feedback and instructional reinforcement. This factor differentiated the teachers of seventh grade students who were more successful than their counterparts in other schools on three of the four test measures: MAT-Mathematics, CRT-Mathematics, and TOPS, whose items reflect both science and mathematics contexts. Direct teaching was also associated with higher student TOPS scores at the sixth and eighth grade levels. Teachers of the higher achieving students reportedly used direct teaching practices more frequently than teachers of lower achieving students.

TABLE 6.6

Summary of Evidence for Effective Teaching Practices in Relation to Significant Differences in Student Achievement Data By School

Student Achievement As Measured By:	Whose Teachers Use:	With What Results	Level of p*
MAT- Reading scores for:			
6th grade classes	Class Projects/Field Trips	are significantly higher	$p < .02$
	Student Led/Small Groups	are significantly higher	$p < .04$
8th grade classes	Student Led/Small Groups	are significantly higher	$p < .05$
	Workbooks and Individual Assignments	are significantly *lower*	$p < .09$
MAT-Mathematics scores for:			
6th grade classes	Workbooks and Individual Assignments	are significantly *lower*	$p < .06$
7th grade classes	Direct Teaching	are significantly higher	$p < .03$
	Workbooks and Individual Assignments	are significantly *lower*	$p < .07$
8th grade classes	Student Led/Small Groups	are significantly higher	$p < .03$

TABLE 6.6 (cont.)

Student Achievement As Measured By:	Whose Teachers Use:	With What Results	Level of p*
CRT-Mathematics			
7th grade classes	Direct Teaching	are significantly higher	$p < .03$
8th grade classes	Direct Teaching	are significantly higher	$p < .04$
	Workbooks and Individual Assignments	are significantly *lower*	$p < .06$
TOPS			
All grade levels	Direct Teaching	are significantly higher	$p < .03$
	Student Led/Small Groups	are significantly higher	$p < .04$

*Differences significant at $p < .09$ or beyond are reported because the n's (number of *teachers*) for these comparisons were very small, and the resulting degrees of freedom very low.

Factor 3 on the use of Field Trips/Class Projects differentiated between teachers of high versus lower achieving sixth grade students as determined by their scores on the MAT-Reading. Teachers of students in the higher scoring school reported more frequent use of supervised trips and project-centered, whole class activity.

The fourth factor, entitled "Student Led/Small Groups" represented a teaching pattern which was associated with higher student achievement at both the sixth and the eighth grade levels on the MAT-Reading and at all three grade levels on TOPS. In addition it differentiated teachers of higher versus lower achieving eighth graders on the MAT-Mathematics. Teachers who reported more frequent use of "Small Groups/Student Led" supposedly fostered activities in which students took responsibility for presentation and discussion of ideas among each other while the teacher visited the groups. This teaching pattern was associated with higher levels of student achievement in five of ten comparisons.

The final factor which emerged from factor analysis of self-reported teaching behaviors was the use of "Workbooks/Individual Assignments." This factor was associated with differences in student achievement in four out of ten possible comparisons, but in three out of four of these significant findings, students who had more class time spent on workbook and individual assignments had significantly *lower* scores than their counterparts whose teachers did not use this pattern so frequently. The one exception in which more frequent use of workbooks and individual assignments favored the highest achieving school was found for eighth graders from School 3 scoring highest on the CRT-Mathematics, whose teachers were known to spend considerable time teaching for the test with practice on examination items.

Sixth grade and seventh grade students who performed less well on the MAT-Mathematics, and eighth grade students who scored significantly lower on the MAT-Reading all had teachers in those subject areas who reported more frequent use of workbooks and individual assignments than higher achieving students, whose teachers used significantly less of this pattern of teaching. Eighth grade students showed mixed results on the CRT-Mathematics in relation to their teachers' reported use of workbooks and individual assignments; it appeared that corresponding emphasis on direct teaching in conjunction with practice in workbooks may have produced the superior results for classes at one school, but over reliance on workbooks without corresponding use of direct teaching was associated with the poorest performance on the CRT-Mathematics.

If these striking results are indeed valid, teachers should be advised to limit students' use of workbooks and individual assignments during class time. Instead they should use teaching patterns which promote higher student engagement, particularly the kinds of activities suggested by Factor 4, which are reflected in cooperative learning. Workbook exercises and individual assignments allow students to look like they are busy at work,when in fact they may not be. These assignments may be useful for some purposes as homework assignments. Even then, students should receive written comments on what they do (Walberg, 1990).

The analysis of teaching patterns associated with higher levels of student achievement was accomplished indirectly. After school differences in student performance on each of four achievement tests were observed to be significant at every grade level, Duncan tests were used to specify which school means were different from other school means. Sorting teachers into the same clusters of schools which differentiated students according to the achievement data, we conducted analysis of their teaching patterns as measured by the factor scores of self-reported teaching practices.

Methodological purists would caution that aggregation effects may account for any association between differences in student achievement and differences in teaching patterns, on the argument that higher achieving students and better qualified teachers would assemble at the same schools, more often those in advantaged suburbs than those in disadvantaged urban areas. While this may be a valid criticism of studies which suggest causal links between higher student achievement and higher teacher qualifications (Weaver, 1986), it is not a valid argument for the present study. Two-thirds of the teachers reported earning advanced degrees, suggesting that there is little variability in their achievement levels, and all were teaching students who came from disadvantaged urban communities. However, if the use of actual teaching behaviors does correlate with student achievement, the finding has important implications for teacher training, staff development and classroom practice.

The inquiry about classroom teaching practices was secondary to the main thrust of the study; the measures were self-reports, and the design was weak; it did not make strong connections between student achievement and actual classroom teaching practices of those students' teachers. Still, strong, clear factors emerged which distinguished teaching patterns used by more effective versus less effective teachers, as determined by student achievement.

Given that Factor 1 included Laboratory/Demonstration activities which could not be used realistically in the schools, differences in the remaining *four* teaching patterns were being compared, paralleling significant differences among schools on *three* achievement tests, at each of *three* grade levels, making 36 possible differences. Since analysis with the fourth measure of student achievement (TOPS) produced no significant schoolXgrade interaction effect, differences in the *four* teaching patterns were not qualified by grade. In all then, there were 40 possible differences (36 + 4) which might have been found in the analyses of teaching behaviors, and 13 were found to be significant at approximately the .05 level or beyond. Fully one-third were statistically significant, whereas only about 5%--fewer than three--would have have been significant by chance alone.

These findings on teacher effectiveness suggest important choices for staff development, scheduling, and coaching--all of which are school level, rather than classroom level decisions, with immediate implications for strategies for school improvement.

CHAPTER 7

THE STUDENTS AND WHAT THEY VALUE

Increasingly, schools are being urged to undertake moral education and character development as complements to academic learning (Wynne & Walberg, 1986). Some would argue that education and schooling are intrinsically moral enterprises; the school's role in the teaching of values and the shaping of character isn't new--it comes with the territory (Ryan, 1986). Others, not necessarily in disagreement, point to the growing reliance on schools as social institutions to do more of what families and other units in contemporary societies are doing less and less. Still others, like Bereiter (1973), argue that the teaching of values is an inappropriate role for schools in a pluralistic society.

Cause for Concern

Coleman (1987) contends that families at all economic levels are becoming increasingly ill-equipped to provide the social capital that schools are designed to complement and augment in educating our new generations. Offering historical and economic perspectives on changes in the structure of family life, Coleman argues that there has been a decline in the capability of the household to be the principal welfare institution in society. What is meant by social capital in the raising of children is the norms, social networks, and the relationships between adults and children that help children grow up in positive, functional ways. Social capital exists within the family, but also outside--in the community, churches, and especially schools, which are increasingly important for those children without extensive social capital within the home. Drawing similar conclusions, other noteworthy analysts have pointed to the school as the conduit for an increasingly wide range of socialization activities and the delivery of a host of human services (Carnegie Council on Adolescent Development, 1989).

Newmann, Director of the National Center on Effective Secondary Schools (1990) argues that increasing numbers of secondary school students (largely poor, urban, minority, and those from families in crisis) do not try to succeed in school. They have lost hope because they see no social or economic benefits of success in school, or, burdened by family and interpersonal stress (from physical abuse, substance abuse, divorce and many other sources) they have little time or energy for schoolwork. Newmann asks how can hope be rekindled in those who have lost it, or generated in those who have never experienced it. He calls hope the psychological capital on which human and social capital depends.

The Stereotypes

The extent of this hopelessness and especially its onset, are important to determine. Fueled by the media, stereotypes abound of black and other minority youth more interested in gold chains, fancy cars, fine clothes and other trappings that dealing in drugs can make affordable. That wealth can buy happiness is a myth for all age groups. That youth from minority family backgrounds have lesser regard for traditional values and the importance of good education is also widely held. The peer group is thought to be especially important for youths in early adolescence. Data from the present study would dispel most of these stereotypes for these middle school students. There is cause for alarm, but it is not epidemic, even among this sample of economically disadvantaged, minority students, at least not yet.

The Good News

Data from the questionnaire administered to almost 1600 students enrolled in four Boston inner city middle schools indicate that these students still subscribe to a very traditional value system which prizes family, good education and hard work. More than 96% think that it is important to go to school. They are there primarily "to learn" (93%), "to get a good job in the future" (74%), and "to get into college" (70%). Fewer than 21% say they go primarily "to see their friends," "because their parents make them" (10%), or "for something to do" (4%). (See Appendix B, responses to items 7 and 9 on the student questionnaire.)

Several items on the questionnaire were designed to inquire about the students' values. In particular, students were asked to rate the importance of ten items on a scale of 1 to 5. (See Appendix B, Section #35, Items A through J.) The percentage distributions of responses are given in Table 7.1. As noted in an earlier chapter, fewer than 9% of the students in these schools were white; most were Hispanic (36%), black (33%), Asian (13%), or some combination. Almost all would be

Table 7.1

Student Ratings on the Importance of Ten Values

	not important		sort of important		very important
Item	1	2	3	4	5
A. Family	.4%	.4%	2.7%	4.3%	92.1%
B. Being rich	24.5%	11.4%	35.2%	10.6%	18.2%
C. Friends	3.6%	4.9%	26.8%	22.4%	42.2%
D. Future education	.9%	1.6%	5.3%	8.8%	83.4%
E. Having fun	8.4%	9.9%	33.1%	21.2%	27.4%
F. Getting good grades	.7%	.6%	5.1%	14.9%	78.7%
G. Feeling safe	1.7%	2.3%	9.1%	18.5%	68.4%
H. Helping others	3.2%	6.2%	27.4%	28.4%	34.7%
I. Having a job now	12.8%	8.9%	24.5%	17.5%	36.3%
J. Future job	1.1%	.8%	5.1%	9.7%	83.4%

regarded as economically disadvantaged, but the value system they report looks very much like that of conventional "middle America," a finding which surprises white middle class adults but affirms what the black, Hispanic, and other minority educators in their midst already know.

More than 92% of the students rated "family" in the highest category. Highest ratings were also given to "future education" (83%) and "future job" (83%), and to "getting good grades" (79%). As seen in Table 4.1, the distribution for each of these values is highly skewed, with the vast majority of responses piling up on the high end of the scale. "Feeling safe" was also very important to the students, as indicated by the high percentages (18% and 68%) choosing categories 4 and 5 respectively on that item.

The distribution of responses on the importance of "friends" was also weighted toward the high end of the scale, but the skew was not nearly so pronounced. Only 42% of the students chose the highest scale point for "friends," a surprisingly low figure to most who know the supposed importance of the peer group to this age level. Ratings assigned to "helping others" resembled the more moderately skewed distribution for the importance of friends. However, the distribution of ratings flattened out across the scale for the more hedonistic values of "being rich," and "having fun." Not only do these middle school students care a great deal about their families, they view education as the key to improving their own futures. Having fun and being rich are of much lesser importance.

Dispelling a Myth

Adolescence in American society has long been described as a period of rebellion against parental norms and rejection of traditional attitudes and values. More than a quarter of a century ago, Bandura (1964) characterized the myth this way:

> ***The adolescent presumedly is engaged in a struggle to emancipate himself from his parents. He therefore resists any dependence upon them for their guidance, approval or company, and rebels against any restrictions and controls that they impose upon his behavior. To facilitate the process of emancipation, he transfers his dependency to the peer group whose values are typically in conflict with those of his parents.***

Bandura and Walters (1959) and other social scientists felt the need to challenge this myth and to note the detrimental consequences resulting from the persistence of the myth. Bealer, Willits and Maida (1964) summarized a large body of research findings which did not support the rebellion image as the characteristic or most widespread pattern of adolescent behavior. Then as now, adolescents chose family as far more important than school friends as the important reference point in their lives. This was true for rural as well as urban youth, and for teenagers from both lower and upper income families.

Researchers at the Center for Early Adolescence cite more recent studies of normal adolescents and their families which also show that the social and emotional problems generally associated with adolescents and the rejection and rebellion against the values or beliefs of their parents have been greatly overemphasized (Dorman & Lipsitz, 1984). While they acknowledge the increasing importance of the peer group as the most notable social change for early adolescence, Dorman and Lipsitz explain that adolescents themselves report looking to the peer group for association and companionship, and to their families for affection, identification, values, and help in solving larger problems.

Other Indicators of Values

Item 16 on the questionnaire was designed to inquire about parental regard for the value of education from the student's perspective. Almost 93% of the students reported that their parents (or guardians) think that school is "very important;" 6.7% answered "important," and only .5% replied "not important" or did not respond. To gauge the relative importance of parents and other adults in their lives, students were asked in item 19 to "Check the three most important adults in your life." Fully 97% choose "mother' but the figure dropped to 83.5% for "father". "Other relatives" were chosen among the top three by 56% of the students, "a teacher" by 15%, "a coach" by 3%, and "other" by 15.2%. These results underscore once again the importance of family to young adolescents, but the discrepancy in the rates choosing mother versus father suggest the absence of the father and his lesser influence in female headed households. The data from the student questionnaire do not enable us to tell whether fathers or stepfathers are actually present in the home, but it is important to note that the father, absent or not from the residence, is still reported by the early adolescent to be an important adult in his or her life.

Additional items which are related to students' values are also included in the questionnaire, however, the items are so numerous, they are presented in separate chapters. Responses to items from sections 11, 12, and 13, regarding how students spend their time after school, on weekends, and during the summer, as well as item 15 on participation in volunteer work are presented in Chapter 8. How students spend their time outside of school suggests what interests them but may also be indicative of what the students value and what factors shape their values.

The frequency of prosocial and antisocial behaviors in the school may be reflective of the students' collective values, as manifest in their daily environment. Responses to items on these behaviors from sections 36, 37, and 38 of the Student Questionnaire are reported in Chapter 9. Indices on rewards and punishments for individuals and groups are also reported in Chapter 9.

Differences in Values by Gender, Race, Grade, and School

Student responses to the ten items in section 35 of the questionnaire were analyzed using Chi Squares and cross tabulations to determine if the distributions of responses were different according to the student's gender, race/ethnicity, grade, or school. Results of these analyses are summarized in Table 7.2. It is instructive to note that no significant differences in importance of family were found on any of the demographic factors. Such a high percentage of the students rated the importance of family so highly that no differentiation could be noted.

Differences by Gender

Statistically significant differences in item responses according to gender are indicated by several of the X^2 's reported in the first column of figures in Table 7.2. The males were far more interested in being rich and having a job now. The females were somewhat more interested in future education and getting good grades, and especially more interested in feeling safe and in helping others.

Differences by Race

Probability values given for the X^2 's reported in the second column of figures in Table 4.2 indicate that significant differences by race/ethnicity exist in most of the items on what is important to students. In order to pinpoint where the differences lay, between which particular racial/ethnic groups, it was necessary to refer to the cells of the cross tabulations. Being rich was significantly more important to blacks and less important to Hispanics than the other racial/ethnic groups. "Friends" were more important to whites than to Asians and blacks.

Table 7.2

Summary of Chi Square Tests of Differences in Students' Values:
By Gender, Race/Ethnicity, Grade, and School

Value	Gender (df = 4)	Race/Eth. (df = 16)	Grade (df = 8)	School (df = 12)
A. Family	2.51	12.25	6.76	9.54
B. Being rich	54.23****	80.68****	8.77	48.92****
C. Friends	8.15	44.42***	5.67	13.25
D. Future education	16.32**	38.47**	7.39	19.70
E. Having fun	7.29	29.63*	18.77*	13.38
F. Getting good grades	11.20*	47.86****	14.27	39.19****
G Feeling safe	24.93****	32.20**	6.54	28.80**
H. Helping others	24.05****	30.63*	7.96	13.58
I. Having a job now	18.13**	36.54**	14.04	49.70****
J. Future job	3.59	21.95	11.96	10.99

*p < .05
**p < .01
***p < .001
****p < .0001

"Future education" was very important to the vast majority of the students; as reported earlier, more than 83% of the sample chose the top rating category to report the importance of this value. But those reporting it to be of lesser importance were more often white. A rating of "5" was chosen by 84% of the Asians, 87% of the blacks, 82% of the Hispanics, and 85% of the "Others", but only 72% of the whites. The diminished importance of education for whites in the sample is also reflected in the responses on the importance of "getting good grades." Again the clear majority (79%)

of the sample valued this most highly, but the figure drops to 65% for whites and increases to 85% for Hispanics. (In concert with responses from several other items, these findings suggest the emergence of an underclass of white males who attend the inner city middle schools which the study addresses. This issue will addressed more fully at the end of this chapter.)

"Having fun" was significantly more important to whites and significantly less important to Asians than to the other groups. The importance of "feeling safe" was rated somewhat lower by whites, as opposed to blacks, who rated it highest. Hispanics rated the importance of "helping others" somewhat more highly than all other groups. Blacks, who also rated being rich more highly than others, were also more likely to report higher importance for having a job now.

Differences by Grade

Analysis of student ratings on the importance of the values given in section 35 of the questionnaire produced virtually no differences according to grade. Only one X^2 in the "grade" column of Table 7.2 is statistically significant. The cross tabulation for that item reflects that eighth graders place slightly more importance than sixth graders on having fun.

Differences by School

Analysis of four of the ten items on values yielded significant differences by school. However, closer inspection revealed that all of these differences can probably be explained by disproportionate representation of certain racial/ethnic groups in the school and/or imbalance by gender. Students in School 3 were significantly more likely to place high importance on "being rich," but students in this school were disproportionately black and male (who were more likely to value being rich regardless of the school they were in).

"Getting good grades" was rated very important by significantly higher percentages of students attending School 1 and 3 (83%) than Schools 2 and 4 (73%). However, earlier, a highly significant difference by race/ethnicity was reported for this item; 85% of Hispanic students rated "getting good grades" very important while only

65% of the whites did so. Hispanics were overrepresented in School 1; whites were disproportionately overrepresented at Schools 2 and 4.

Students in School 4 reported somewhat higher importance on "feeling safe " than the students in School 2, but females overall rated safety higher than males, and School 4 was the only school in the sample which enrolled more females than males (52% versus 48%), while School 2 enrolled a substantially higher percentages of males (59%). "Having a job now" was judged to be very important by a significantly higher proportion of students in School 3 than School 4, but again, School 3 had a disproportionate representation of blacks and males (who are more likely to value a current job regardless of the school they are in), and again, School 4 had more females.

Willing Teachers and Receptive Learners

Teachers' responses to their questionnaire and to interviews are reported more fully in later chapters, but their replies to an item in the Teacher Questionnaire are previewed here to suggest where the teachers stand on the teaching of values. The discrepancy between teacher judgements of how successful their schools were in teaching moral/ethical values versus how high a priority their schools should place on the issue is fifth highest, among 31 such comparisons. Clearly, the teachers were reporting that the schools need to do better in meeting students' needs in moral education.

The students made an even more strenuous case for the teachers' taking up this responsibility. Item 21 of the student questionnaire asked them to check the three most important responsibilities of the teacher's job in their school. More than 98% say "to help us learn," but the responsibility rated next, by 77% of the students, was "to teach us right from wrong." "It comes with the territory." By comparison, 41% chose "to be our friend;" the same percentage checked "to make us behave," and only 11% chose "to take care of us" or "other".

Evidence for Dispelling the Stereotypes

The analysis of the importance of values by race revealed several important differences which were not always consistent with conventional stereotypes. Asians placed heavy emphasis on the importance of family and education, as expected. And so did Hispanics, who also varied from the norm in their lesser importance on being rich and greater importance on getting good grades. However, Hispanic youth who are supposedly excessively social according to the stereotype, reported values for friends and having fun, which were close to the norm for all groups. More importantly, the Hispanic students were significantly higher than the norm on the more altruistic value for helping others. Both the Asians and the Hispanics report values which appear to reflect striving immigrant groups.

Blacks reported values which are similar to those of other racial/ethnic groups, with two exceptions. Blacks placed significantly greater importance on being rich, especially as compared to Asians and Hispanics, and significantly greater importance on having a job now.

The greatest number of significant differences contrasted the whites in the sample from the other racial/ethnic groups. Whites in the sample placed significantly greater importance on friends and having fun and significantly lesser importance on future education, getting good grades, feeling safe, and having a current job--all of which suggest a lack of vision for the future and living for the present.

The Presence of an Underclass

The teaching of moral/ethical values and the nurturing of faith in the benefits of hard work and of hope in one's future may be of especially critical importance to some of the students in the sample. Economic deprivation cut across racial and ethic groups in the sample, but different psychological profiles seemed to emerge for these groups, some according to stereotape, some not. The whites who attended the schools in our sample appeared to reflect the characteristics of an underclass, "those who no longer dream the American dream, who cannot imagine working hard and moving from where they are to where they would like to be, who do not seek employment, who have concluded the game is lost" (Chicago Tribune, 1986). It is widely held that Hispanics and blacks constitute most of the underclass, yet in the schools of our sample, it would appear to be the whites (albeit whose numbers are small) who were proportionately more likely to reflect the hopelessness of the underclass.

Very few whites attended the four schools; they constitute 9.1% of the sample overall, but more striking than their underrepresentation in the school enrollments, was that they were overwhelmingly male (64%). It appeared that white families in the school district who had any financial discretion chose to send their daughters to parochial schools and not to the public schools in the sample; if,with limited financial discretion, they had to choose between sending a son or sending a daughter of compulsory school age to one of these public schools, they chose a son. Unofficial estimates from knowledgeable sources in both the public and parochial schools in the area confirmed these suspicions.

The enrollment figures for whites rangeed from 6.2% to 7.2% in the academically less effective schools, to 10.8% and 12.6% in the academically more effective schools. It is shown in later chapters that the whites in these schools were not behind their classmates on tests of achievement, but their responses to items of psychological content were cause for concern. As noted earlier, school was important to the vast majority of students (96%), but whites were three to four times more likely than other racial/ethnic groups to be in the small minority who said school was not important. Asked to check the three most important reasons for coming to school, 94% to 95% of Hispanics, blacks, and Asians replied first "to learn", but only 84% of white chose this option, instead, skipping over it to chose "see my friends" in significantly greater percentages than the other groups.

Responses to the question on important adults in their lives also varied by race. Fully 98% of students in all groups chose "Mother" among the three most important adults in their lives, except the whites, whose figure dropped to 94%. In choosing "Father", the second option on the list, Asians reported 94% and Hispanics 90%, but blacks and whites drop to 81% in naming their fathers as important adults in their lives. While the portrayal of values was positive for the overwhelming majority of students, it is important to monitor these values and especially to note early warning signals for troubled, disenchanted, dispirited youth.

Summary

If economically disadvantaged, largely minority youth who attend urban middle schools hold value systems like those reported by the vast majority of students in the present study, there is reason to be optimistic about their futures. Teachers complain: "Just give me students who want to learn!" If responsive, effective education can be made available to these students, it's not too late, because these students want to be in school, they want to learn, and they recognize the crucial importance of education to the quality of their lives in the future.

Very substantial percentages of the students used the highest point on the rating scale to indicate the importance they placed on family (92%), future education (83%), future job (83%), and getting good grades (79%). The basic human need of feeling safe was also deemed very important (68%), but the importance placed on friends, while still very substantial (42% choosing very important), was not as pronounced as the importance placed on family and education. The distribution of responses for the more hedonistic value of being rich flattened considerably; having fun and having a job now were also of relatively lesser importance.

Tests of significance of differences in these values according to gender as well as race/ethnicity produced several significant differences. While the gender differences favoring the more positive outlook of females corresponded with the stereotypes reported for a sample of this socioeconomic level, the differences by race/ethnicity held some surprises and did not conform to conventional stereotypes. Differences by grade were not significant, and differences by school corresponded to the racial and gender differences which were proportionate to their enrollments.

Teachers recognized the importance of teaching values and serving as role models to their students. While these responsibilities were not among the highest priorities for the teachers, they reported that their schools (and by implication themselves) were remiss in addressing this area of student needs satisfactorily. The discrepancy noted between success versus priority assigned to this area ranked fifth among 31 areas rated by the teachers; teachers appeared to recognize the need to do more in schools about moral education of their early adolescent students.

The evidence indicates that the students held very positive traditional value systems; they wanted teachers to "teach us right from wrong"; and teachers concurred with this need. The emergence of a very small minority in these schools whose values suggested they have no dream for the future but only the benefits of the present was disturbing. These youths who might be part of what has been termed an *underclass*, tended to be male, not female, and disproportionately white; to a lesser extent, disproportionate to the enrollments, they are black, but not Asian, and not Hispanic.

CHAPTER 8

HOW STUDENTS SPEND THEIR TIME OUTSIDE OF SCHOOL

The thrust of this research for effective middle schools has been to help schools assess their impact on students in a variety of areas, not just basic skills. The research seeks to provide schools with tools yielding valid indicators of effectiveness which can be used to provide bench marks, guide choices, and monitor change. A point of departure for the research has been that schools do make a difference, however, what students do outside of school is also of interest, because that knowledge may help to guide choices for school reform and restructuring.

Time Is Critical

An influential book on school reform from Great Britain was entitled "Fifteen Thousand Hours: Secondary Schools and Their Effects on Children," (Rutter, Maughan, Mortimore, & Ouston, 1979). The authors introduced their study by noting that: "For almost a dozen years during a formative period of their development children spend almost as much of their waking life at school as at home." In Great Britain this works out to some 15,000, from the age of five until leaving school, during which time schools and teachers can have considerable impact on the development of children and youth in their care.

For the schools in the present study, the time for potential influence is significantly less. Students are in school only six hours a day (three in the kindergarten year), for 180 days per year, over 13 years, or 13,500 hours--if they don't become truant or drop out.

But Not More of the Same

The National Governor's Association, The Carnegie Council on Adolescent Development (1989), the National Center for Research on Elementary and Middle Schools, and several national associations of professional educators, among others have called for the restructuring of schools to make them more effective. These groups recognize that superficial refinements and small increments, which are simply more of the same ineffective practices, won't work. Effective reform of urban education will require fundamental restructuring of schools. But how students spend their time is a factor. Actual time spent learning is critical, and proposals to extend the school day, the school week, and even the school year may be effective for shaping students' behavior in a variety of positive ways.

In the previous chapter, we noted that schools are being asked to serve as the conduit for a host of human services which the home can no longer provide. This is especially so for the homes of economically disadvantaged minority youth, but also for most children in our society today. Some of the decreased capability is simply a function of the limited time adults and children in families now spend with each other. For the majority of husband-wife families with children under 18, both parents are in the labor force. According to data from the U.S. Department of Labor, Bureau of Labor Statistics, 55.1% of two-parent families had both parents working in 1987; 69.1% of women heading single parent households worked, and 92.1% of men in single-male-headed households worked. The corresponding figures for 1975 36.2%, 59.9%, and 86.1%. Knowledgeable personnel in the schools of our sample report that their middle school students go home to empty households or they assume responsibility for the care of younger children in their parents absence.

Gauging Students' Time Out of School

Three sets of items were included on the student questionnaire to gauge how students spend their time after school, on weekends, and during the summer. Students were asked to report the number of hours they spend on various activities after school and on weekends. They were told: "If no hours, write 0." Responses giving fractional parts of an hour were rounded up to the next full hour. For summer activities, students were asked: "How did you spend **most** of your time **last summer**? Check three (3) ways."

Tables 8.1 and 8.2 give the percentages of students reporting how many hours they spend on each activity. These simple descriptive statistics provide a dramatic picture of the lives of urban middle school students outside of school. Their responses suggest what interests them and what they value, but also what opportunities may or may not be available, as well as what responsibilities they might have to their families.

TABLE 8.1

How Students Spend Most of Their Time After School

Activity	Hours				
	0	1	2	3	4+
Work outside the home	82.1%	05.2%	03.6%	03.2%	05.9%
Do chores	28.6%	48.4%	14.8%	04.3%	04.0%
Do homework	6.7%	50.4%	26.3%	09.6%	07.1%
Afterschool program	77.2%	13.2%	04.7%	02.5%	02.5%
Watch TV/videos	10.1%	19.5%	21.9%	18.0%	30.4%
Play video games	43.8%	28.7%	12.2%	06.3%	08.9%
Go out with my friends	30.5%	17.5%	15.0%	12.6%	24.6%
Read	33.5%	44.2%	13.6%	03.4%	05.4%
Play sports	40.0%	21.6%	15.2%	11.5%	11.7%
Take lessons	86.5%	05.4%	03.2%	02.1%	02.7%
Play music	54.5%	20.2%	09.8%	06.6%	08.7%
Hang out	45.5%	14.9%	11.4%	07.6%	20.8%
Other	79.1%	06.8%	04.3%	03.2%	06.9%

TABLE 8.2

How Students Spend Most of Their Time on Weekends

Activity	Hours				
	0	1	2	3	4+
Work outside of the home	82.2%	04.6%	03.8%	02.7%	06.5%
Do chores at home	33.7%	33.7%	19.5%	06.5%	06.6%
Do homework	47.8%	32.1%	11.3%	04.8%	03.9%
Watch TV/videos	12.2%	14.6%	17.8%	15.4%	40.2%
Play video games	41.5%	21.6%	14.9%	08.7%	13.3%
Hang out	36.5%	10.7%	10.3%	11.0%	31.8%
Go to the mall/shopping	22.8%	11.2%	17.2%	17.7%	31.2%
Go to the movies	32.2%	05.0%	26.7%	17.7%	18.4%
Go church,temple,mosque	53.5%	17.5%	11.0%	07.0%	11.0%
Play sports	41.0%	17.6%	15.4%	12.1%	13.9%
Take lessons	88.9%	03.8%	03.5%	01.3%	02.4%
Play music	55.9%	15.2%	11.2%	05.2%	12.5%
Other	78.5%	03.6%	03.3%	03.3%	11.2%

Factor analysis using all 26 time variables from the lists of after school and weekend activities yielded 10 significant factors with eigenvalues greater than one. Together the factors accounted for 69.4% of the variance. However, several of the factors were two-item factors, i.e., they had two items with very high loadings ranging in the .70's to high .80's, and loadings on all other items approaching .00. Inspection of the item content revealed that where pairs of items existed in the after school and weekend lists of activities, the pairs loaded together on the same item. If students spent time playing music after school, they tended to do so on weekends too. The same could be said for playing sports, working, watching TV, and "other" activities; whatever they did after school during the week, they did on weekends.

Two four-item factors also resulted. Students who played video games were the ones who reported hanging out, both after school and on weekends. This combination of four very high loadings came out clearly on the first factor. The second factor also included four high loadings, for doing chores, and doing homework, both after school and on the weekend, suggesting that the structure and responsibility reflected by students' doing chores was also operative for homework.

Since the factor analysis of 26 items yielded 10 underlying constructs, while joining of like items reduced the data to almost as small a number of variables, it was decided to use the simpler data directly, and forego the calculation of factor scores and the labeling of multiple item factors. Instead, a composite week of time spent on a given activity was calculated for those items which were included both in the list of after school activities and the list of weekend activities. Thus, the student's response for hours spent after school on a given activity was multiplied times four (for school nights) and the product added to the time he or she reported spending on that activity on the weekend. If a weekday activity had no weekend counterpart, or vice versa, no transformation was applied and the original responses were used in subsequent analyses of those items. The subsequent analyses were four-way analyses of variance--by school, grade, sex, and race--to determine if there were any significant differences in the ways students spend their time if they are grouped according tho these factors. A summary of the statistically significant findings from these four-way ANOVA's is presented in Table 8.3. Complete ANOVA tables are available from the Project Director.

TABLE 8.3

Summary of Significant F Ratios from Four-Way Analyses of Variance of How Students Spend Their time Outside School, and Results of Duncan Tests of the Significance of Mean Differences on Significant Main Effects: School, Grade, Sex and Race

ANOVA Effects: Degrees of Freedom	School 3	Grade 2	Sex 1	Race[a] 4	Interactions
Afterschool Program	NS	NS	NS	NS	SchXRace
Read	NS	NS	5.12* M<F	NS	NS
Go out with friends	NS	NS	NS	7.93**** A<HW<OB	NS
Work outside the home	NS	NS	7.70** F<M	3.34** OAB<W	NS
Do chores at home	NS	NS	16.42**** M<F	NS	NS
Do homework	NS	3.14* 6<7<8	NS	2.93* 0WHB<A	NS
Watch television	NS	NS	NS	2.85* WHA<BO	NS
Play video games	NS	NS	29.81**** F<M	NS	NS
Play sports	NS	5.11** 8,7<6	71.39**** F<M	4.07** A<HOW<B	GrXRace SexXRace
Take Lessons	NS	NS	NS	NS	NS
Play Music	NS	NS	7.89** M<F	5.69**** AW<OHB	NS
Go to the mall/shopping	NS	NS	27.38**** M<F	7.57**** AHW<B	NS
Church,temple,mosque	NS	NS	4.62* M<F	3.27** A<HWBO	GrXRace

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[a] Race/ethnicity is coded A=Asian, B=black, H=Hispanic, W=white, and O=other.

TABLE 8.4

Percentages Reporting Whether They Have a Job, Chi Square Tests of Significance And Summary of Four-Way ANOVA of Hours Spent Working, By School, Grade, Sex, and Race

Basis for Grouping	Having a Job Yes	 No	Chi Square Yes/No	F Ratio Hours
Overall	21.7%	78.3%		$\bar{X}$= 8.3
By School			NS	2.78* 3,1<4
School 1	20.4%	79.6%		
School 2	21.1%	78.9%		
School 3	25.6%	74.4%		
School 4	22.4%	77.6%		
By Grade			9.40**	6.01** 6,7<8
Sixth graders	24.6%	75.4%		
Seventh graders	17.0%	83.0%		
Eighth graders	22.8%	77.2%		
By Sex			24.86****	4.61* F<M
Males	26.6%	73.4%		
Females	15.9%	84.1%		
By Race/Ethnicity			32.39****	2.57* H,B<W
Asians	14.4%	85.6%		
Blacks	26.4%	73.6%		
Whites	33.6%	66.4%		
Hispanics	16.8%	83.2%		
Others	25.6%	74.4%		

*p < .05
**p < .01
****p < .0001

Time Spent on Out of School Activities

In the sections which follow, the simple descriptive statistics on percentages of students who participated in each activity are noted for each activity. Results are also given from the analysis of variance tests to show what significant differences exist among groups, by school, grade, sex, and race.

Working Outside the Home

Fully 82% of the students reported in items 11 and 12 that they spent no time working outside the home. Analysis of variance of the hours spent working by students in a composite week (4 times the hours reported for after school, plus the hours spent on a weekend) showed that there are significant differences by sex and by race. Males report on average working outside the home nearly twice as many hours as the females (3.51 for males versus 1.81 for females, $F = 7.70$, $p < .006$). Duncan multiple range test showed that the significant effect for race ($F = 3.34$, $p < .01$) was obtained because of those who worked, whites averaging 4.24 and Hispanics averaging 3.52 hours per week worked significantly longer than Asians (1.17 hours) and in turn those in the "other" category who averaged just .58 hours per week.

These results are consistent with those obtained from an item on similar content on the questionnaire. Item 14a asked: "Do you have a job outside the home?" Of those responding 78.3% said "No." Those who said "yes" had a mean of 8.3 hours for item 14b: "If yes, how many hours per week do you work?" Chi squares were used to analyze differences by grade, sex, race, and school in the dichotomous variable, having a job or not. These results are given in Table 8.4. The results are consistent with the outcomes of the ANOVA test reported previously on hours spent working outside the home. No school differences were significant in the chi square analysis, but males were significantly more likely than females to be working outside the home (26.6% versus 15.9%). The factor of race/ethnicity was also highly significant; white students were far more likely to have a job than nonwhites; Asians and Hispanics were least likely to report having a job.

The chi square for grade differences in having a job was significant at $p < .01$. Surprisingly, sixth graders were more likely to report having a job (24.6%) than eighth graders (22.8%) and in turn seventh graders (17.0%), but, as determined by analysis of variance, those sixth and seventh graders who did have a job worked a significantly lower number of hours than eighth graders who worked. The four-way analysis of variance was used to study differences in students' reports on the number of hours they work, not only by grade, but also by school, sex, and race. These results are also summarized in Table 8.4. All main effects were significant, with no interaction effects. Males worked outside the home a significantly higher number of hours per week than females. Students at School 4 worked significantly more than students at Schools 3 and 1, but this may simply reflect the higher representation of certain minorities in those schools--blacks and Hispanics respectively. Whites worked significantly more than black and Hispanic students.

Doing Chores

Almost half of the students (48.4%) report spending an hour on chores after school, and 23% report two or more hours a day doing chores after school. The average overall for a composite week is 6.4 hours, but there is a highly significant sex difference on this variable ($F = 16.42$, $df = 1$, $p<.0001$). Females reported spending almost twice the time doing chores as males, 8.2 hours versus 4.7 hours. The sex difference in the previous activity should be noted again; males reported twice the number of hours working outside the home (no doubt for pay) as females, 3.5 versus 1.8 hours. But on net, the females are working more, probably for low or no pay, reflecting a sex difference which gets established very early in life.

Doing Homework

Happily, a very small percentage of students (6.7%) reported doing no homework on a typical day after school; half (50.4%) reported spending an hour, and more than a quarter (26.3%) of the students said they spent two hours on homework after school. However, the picture on weekends was not so positive. Almost half (47.8%) reported doing no homework on weekends, and barely a third (32.1%) reported spending one hour; 11.3% reported spending two hours of the weekend on homework. The overall average for a composite week was 8.2 hours.

The four-way analysis of variance on this variable produced two significant main effects and no significant interaction effects. As seen in Table 8.3, the F ratio for grade was significant at $p < .05$; not surprisingly, students reported longer hours of homework each week as they advanced in grade level. The F ratio for differences according to race/ethnicity was also significant, at $p < .02$. Again not surprisingly, Asians reported spending substantially longer hours doing homework that students in all other racial/ethnic groups. This difference of approximately 6 hours per week correlates with the higher achievement levels which Asians demonstrate on measures to be reported in later chapters.

Going to Afterschool Programs

The great majority of students (77.2%) have no involvement in after school programs. As seen in Table 8.1, 13.2% report spending up to an hour each day in after school programs and less than 10% spend two hours or more. The mean time spent in after school programs for the total sample is only 27 minutes. Asked why this was so, school officials confirmed that budget cutback forced discontinuation of most after school programs, and many students are not able to take advantage of the few that remain. Transportation schedules prevent many students from staying after school; and parents, particularly "Asian parents" and "parents of daughters" want their children to "go straight home."

Analysis of variance of the number of hours spent in after school programs each day produced no significant main effects, but one curious interaction effect was found. The F ratio of 2.32 for race by school differences was significant at $p < .01$, because 37 Hispanic students at School 4 reported an average of 2.76 hours on some after school program(s), when the cell averages ranged from .10 to 1.00 hours.

Watching TV or Videos

Regrettably but not surprisingly, the urban middle school students in our sample reported spending more time watching television, both after school and on weekends, than engaging in any other activity. After school, 90% reported watching one or more hours of television, almost 70% two or more, almost 50% three or more, and 30% four or more. On weekends, some of the weekday TV watchers find other things to do, so one- two- and three- hour viewing categories decline by approximately 5%, 4%, and 3% respectively, but those in the four plus hours of viewing category increases by 10% from weekdays to weekends.

The analysis of variance of hours spent watching television in a composite week produced only one significant effect, for race, at $p < .03$. Blacks were significantly more likely than Asians, whites, and Hispanics to watch television by a difference of two or more hours per week. These findings are consistent with those published in *Youth Indicators 1988: Trends in the Well-Being of American Youth* by the U.S. Department of Education Office of Educational Research and Improvement, which also funded the present study. Black students in grade 8 were more likely than Hispanics or whites to watch TV more than 2 hours per day (NAEP, 1986). Asians were not identified as a separate racial/ethnic group in the NAEP report.

Playing Video Games

More than 40% of the sample reported not playing video games, after school or on the weekend, but of the almost 60% who do, 29% report spending one hour after school, 22% on weekends, with the difference going to the higher rates of use on weekends. Students in the socioeconomic brackets of the sample may not have Nintendos or computers with software games at home and instead have to go to arcades which they are more likely to visit on weekends.

Hours spent in a composite week playing videogames averaged 6.65 hours for the entire sample, but analysis of variance yielded a highly significant sex difference. Males were much more likely to spend time on videogames than females, 8.89 versus 4.23 hours, $F = 29.81$, $p < .0001$. A curious race by grade interaction effect was also observed; time spent playing video games declines over grade levels for all racial/ethnic groups except Asians, for whom a startling increase occurs from seventh to eighth graders, from 2.90 to 15.06 hours per week.

Going Out with Friends

This item was included only in the list of after school activities; inadvertently it was omitted from the list of weekend activities on the student questionnaire. Factor analysis of both sets of items, weekday and weekend activities, placed it in the same cluster of items as taking lessons both after school and on weekends, and with reading. Analysis of variance for this item produced only one significant effect, for race/ethnicity, on which Asians scored significantly lower than all other categories.

Reading

Like the previous activity, reading was also included only in the after school list. (The marvels of word processing caused us to repeat our mistake.) One-third of the students in the sample reported doing no reading after school, but 44% read for an hour, and 22.4% read for two hours or more each day after school. The ANOVA of time spent after school in reading produced only one significant interaction effect, for sex. Females were more likely than males to read after school, with average times reported of 1.38 hours for females and 1.00 hour for males.

Playing Sports

Playing sports for an hour or more both after school and on weekends was reported by 60% of the students. The average time spent in a composite week was seven hours for the total population, but the analysis of variance produced several significant main effects and interaction effects as well. Sixth graders reported playing sports more frequently than seventh or eighth graders (8.61 hours versus 6.54 and 5.32 hours). Males were more than twice as likely than females to spend time playing sports 9.80 versus 4.08 hours ($F = 71.39$, $p < .0001$). Asians were significantly less likely to be playing sports as other groups, especially blacks and whites.

Two significant interaction effects were also observed in the analysis of variance for time spent playing sports. First, a race by grade effect showed declines in time spent on sports over grade level for all racial/ethnic groups except Asians where a marked increase occurs between grades seven and eight. (The same pattern was observed for video games). In addition, significantly different ratios of male to female participation in sports were found for various racial/ethnic groups; the ratio of hours spent for male versus females was 2: l for Asians, 2.4:1 for blacks, 3:1 for whites as well as Hispanics, but 1:2 for the "other" category.

Taking Lessons

The vast majority of students in the sample did not take lessons of any kind. ANOVA of group differences produced no significant main effects and no significant interaction effects.

Playing Music

This item could have been interpreted by the students to mean "listening to a Walkman or other radio/stereo system" (as intended by the designers of the questionnaire) or "playing a musical instrument," or both. Several pilot tests did not reveal any confusion on the part of the students, and so the item survived to the final form. A surprisingly high percentages reported not playing music either after school (54.5%) or on weekends (55.9%). Among those who did, several group differences emerged from the analysis of variance of the measure for the composite week. Females reported significantly more time playing music than males, 7.99 hours versus 4.76 ($F = 7.89$, $p < .005$). Blacks, Hispanics, and "others" were far more likely than whites or Asians to spend time playing music. The mean hours were 8.42 , 7.33, and 7.22 for the first three groups respectively, and 2.63 and 1.79 hours for the list two groups.

Hanging Out

Hanging out was the final category which appeared on the lists of both after school and weekend activities. More than half of the students (54.5%) reported spending time hanging out after school; while the hours declined for most of the students, the percentage shot up to 20.8% for students who spend who spend four or more hours per day hanging out, as opposed to some more purposeful activity. Time spent hanging out increased on the weekend, and the percentage who spend four or more hours doing it rose an additional 11 points to 31.8%.

The four-way analysis of variance for this item produced significant main effects for school, sex, and race, as well as one significant interaction effect for school by race. Students from the two schools to which many are bused (Schools 2 and 4) reported significantly less time hanging out than students in the largest school which had a moderate amount of bussing (School 1) and especially the neighborhood school to which most students walk (School 3). Males reported significantly more time each week hanging out than females (11.39 hours versus 9.55; $p < .05$). The overall difference by race was highly significant, with blacks spending more than twice as much time hanging out as Asians and Hispanics, and approximately 50% more than whites.

The significant interaction effect for school and race reflected the finding that among students at the neighborhood school, blacks and especially Hispanics spent a great deal more time hanging out and whites and Asians considerably less time hanging out than the means for their racial/ethnic groups overall. The reports of blacks at one of the "busing schools," School 2, reported time spent hanging out which was approximately twice the school average.

Going to the Mall/Shopping

This and the remaining items appeared only in the list of activities for the weekend. Almost 78% of the students reported spending at least some time going to the mall/going shopping on the weekend. For 31.2% it is a major event of the weekend on which they spend four hours or more.

Analysis of variance for this item produced a significant sex difference in the predictable direction. Not surprisingly, females reported spending more time going to the mall/shopping than males, 3.30 hours versus 2.26, a difference which begins at an early age and probably continues throughout the lifespan. One interaction effect (race by school) for time spent going to the mall/shopping was significant at the .05 level. Asians in School 2 and the very small number of whites in school 3 were significantly less likely to go to the mall/shopping. Several reasons are plausible, including lesser interest/value for the activity, and, quite possibly, lesser access to transportation to get to a mall. Money to buy things may have little to do with whether young teens frequent the malls. They go there to socialize and be with their friends, not always with the blessing of shop proprietors and other age groups(Jacobs, 1990).

Going to the Movies

Students who go to the mall are the ones likely to be going to a movie too. Only 5% report one hour's time devoted to the movies on weekend; but few films are as short as this. More than a quarter of the students reported spending two hours at the movies on weekends, while 36% claim to spend three hours or more. The analysis of variance yielded no significant main effects for this variable, but one significant interaction effect was observed, for race by school. Proximity to movies theaters and access to public transportation in combination with different racial/cultural patterns on this activity may account for the differences.

Going to Church, Temple, or Mosque

More than half of the sample of middle school children (53.5%) reportedly spend no time in formal religious observance on the weekend. Analysis of variance for this variable yielded significant main effects for sex and race and significant interaction effects for school by race and for grade by race. Females were significantly more likely than males to participate in some formal religious observance on the weekend. Asians were significantly less likely than all other groups to go to church, temple or mosque on the weekend. Accounting for the significant race by school interaction effect, those in the "other" category at School 1 spent two to three times more time in services than their counterparts at other schools, and whites at School 4 spent two to four times the number of hours in religious observances as their counterparts in the other schools. In addition, the "others" in grade six and the whites in grade 7 reported significantly more time attending services, a curious result which knowledgeable observers in the schools cannot explain.

Correlations with Achievement Measures

Individual and composite time measures were correlated with achievement measures to investigate whether the way in which students spend their time might influence how well they perform academically. The achievement measures includes four test scores-- the specially developed Test of Problem Solving (TOPS), the Boston Public School's Criterion Referenced Test in Mathematics, and the Metropolitan Achievement Tests of Reading and Mathematics--and five final grades, in reading English, mathematics, science, and social studies.

The correlations ranged in magnitude from .00 to .26, and the vast majority were negative, suggesting that the reported after school and weekend activities detracted somewhat from test scores but more from school grades. Most figures were statistically significant, a function of the large sample sizes. TV viewing correlated close to zero with most achievement measures. Doing homework had low positive correlations with some grades but nonsignificant correlations with test scores. Playing sports correlated negatively with grades (-.11 in science to -.20 in English), but had no correlation with any of the four test scores. Playing music correlated negatively (-.16 to -.25) with test scores, math and science grades, but not with the other grades. Spending time seeing friends, hanging out, and going to the movies correlated negatively with all achievement measures (correlations ranging from -.12 to -.25) except with the Metropolitan Reading Test and final grades in English, where the correlations were not significant. Correlations between achievement measures and religious observance on weekends were not significant, except with the Metropolitan Achievement Tests which correlated -.12 in mathematics and .-14 in reading. (Asians who tend to be the highest achieving are less inclined than other racial/ethnic groups in the sample to participate in religious services on weekends.)

The time measures were used in multiple regression equations to predict each of the four achievement tests and the five final grades. Across the nine computer analyses, the program used between one and six time measures as statistically significant predictors, but in no case was the R square as high as .10. Collectively, the time variables contribute no more than 10% to explained variance in the achievement measures.

Summer Vacations

A different response format was used to elicit students' reports on how they spend most of their time last summer. From a list of eleven options, including "other," they were asked to check the three ways they spent most of their time. Their responses in Table 8.5 are given as percentages who checked each item as one of their top three responses.

Among first checks, almost one third indicated "help around the house," skipping over the item in first position, "work outside the home" because most of the students in the sample are too young to work legally. Very few reported going to summer school, only 10.5% overall. One quarter went to camp. Playing sports drew the largest number of second checks, and across the three, totaled 43.4% of the students, the second highest use of summer time overall.

"Travel" received the highest percentages of checks across all three columns, 46% overall. While travel seems an unlikely option for the most frequent use of

TABLE 8.5

How Students Spend Their Time During the Summer

Activity	Percentage Choosing Among Three First	Second	Third	Composite Percentage	Rank
Work outside the home	15.9%			15.9%	7
Help around the house	31.9%	5.2%		37.1%	3.5
Go to summer school	5.7%	4.2%	.6%	10.5%	10
Go to camp	15.5%	8.5%	1.4%	25.4%	5
Play sports	14.5%	23.9%	5.0%	43.2%	2
Travel	9.9%	22.0%	14.1%	46.0%	1
Stay home	2.7%	6.9%	4.4%	14.0%	8
Watch TV/videos	1.2%	10.9%	12.1%	24.2%	6
Play video games	.3%	3.7%	8.3%	12.3%	9
Hangout	.9%	4.7%	32.3%	37.9%	3.5
Other	.1%	.2%	7.5%	7.8%	11

summer time among an economically disadvantaged population, it may be that parents of these inner city students give high priority to getting their children out of the city during the summer, either by leaving with them or more likely, sending them to visit relatives. Item placement, i.e., the order in the list, and social desirability may be influencing students' choices on this question as much as item content (actual summer activity).

Watching TV, staying home, and playing videogames were not frequently reported activities, perhaps due to late placement on the list, or perhaps because students were tired of these activities which take up much of their time during the school year. "Hanging out" was chosen as frequently as "helping around the house."

Doing Volunteer Work

A separate item on the questionnaire inquired whether the students did any volunteer work, and if so, what, and how often. Item 15a inquired: "In the last year, have you done any volunteer work (helping a good cause for no pay)?" Overall, 26.5 % of the students responded yes. Of those who did, 51.5% reported that they did so weekly, 11.9% monthly, and 36.6% a specific number of times. Typical of the services they volunteered were "helping elderly people at hospital", "helping elderly with grocery shopping", "babysitting underprivileged kids", "walk for hunger", "help clean park", "help at church", and "clean up my mother's house".

Chi square analyses were conducted for differences according to grade, sex, race, and school both on the dichotomous variable of whether students did volunteer work or not and on the frequency rated weekly, monthly, or otherwise. Results are reported in Table 8.6. A significant grade difference was found, with sixth grade students more likely to report doing any volunteer work than students in seventh grade or, in turn, eighth grade. Whites, "others", and blacks were significantly more likely to report doing volunteer work than Hispanics and especially Asians who reported the least. No significant differences were found for sex or school factors. For those who did report doing volunteer work, no significant differences were observed in the frequency according to grade, race, sex, or school.

Summary and Discussion

The four urban middle schools in our sample are in session for students exactly six hours each day. One with a delayed opening begins at 8:30 a.m. and ends at 2:30; the three others begin at 7:40 a.m. and send students home at 1:40 p.m. According to school personnel, many of these students go home to empty houses, where they watch TV and care for younger siblings who attend the elementary grades. Our data confirm the extent of television watching. Fully 90% watch for at least an hour, 70% watch TV for two hours or more, 30% for four hours or more after school. These viewing rates exceed what was reported nationally for high school seniors in the class of 1985 (U.S. DOE-OERI, 1988. p. 109). Approximately 75% of high school males and 69% of the females in that graduating class reported watching TV after school. It was their most common daily activity.

TABLE 8.6

Percentages Reporting Whether They Do Volunteer Work and Chi Square Tests of Significance of Differences by School, Grade, Sex, and Race

Basis for Grouping	Yes	No	Chi Square Values	
			Yes/No	Frequency[a]
Overall	26.5%	73.5%		
By School			NS	NS
School 1	24.4%	75.6%		
School 2	26.2%	73.8%		
School 3	24.1%	75.9%		
School 4	32.2%	67.8%		
By Grade			27.48****	NS
Sixth graders	33.7%	66.3%		
Seventh graders	24.2%	75.8%		
Eighth graders	19.5%	80.5%		
By Sex			NS	NS
Males	25.4%	74.6%		
Females	27.6%	72.4%		
By Race/Ethnicity			37.07****	NS
Asians	12.4%	87.6%		
Blacks	30.8%	69.2%		
Whites	36.4%	63.6%		
Hispanics	23.5%	76.5%		
Others	35.9%	64.1%		

****$p < .0001$

[a] Of those students who reported they had done volunteer work in the past year, 51.5% said they did it weekly, 11.9% monthly, and 36.6% a specific number of times.

The figures in Table 8.1 suggest that those who don't go home and watch television go out with friends after school, or simply "hang out." Almost 70% of the sample reported going out with friends for an hour or more and a quarter (24.6%) spent 4 or more hours this way. "Hanging out" occupied more than half (54.5%) the students for an hour or more each day, and for 20.8% it consumed four or more hours a day.

Fully one-third spent no time reading after school, but 44.2% claimed to read for one hour, few more than that. Half of the students reported spending an hour on homework after school, another 26.3% spend two hours; 16.7% spend three hours or more, but only 6.7% claimed to do none. The low percentages of time spent reading probably reflects choice but also may reflect lack of opportunity, i.e., the scarcity of reading material in the home. Three of the four schools reported that teachers are reluctant to send students home with text books. There are not enough to go around, and the teachers fear the short supply will dwindle further. Instead, they prepare students with worksheets or assignments in their notebooks.

It is clear from the data that the students have very few choices available to them. More than three-quarters do not go to after school programs, mostly because they are not available. Even fewer take lessons, for example in dancing, music, or language, because lessons are beyond the means of most of these families. Most of the children leave school by 1:40 p.m., and they have little else to do but watch television, see friends, and hang out, for four or more hours, until their parents get home.

Weekends present a similar picture of unstructured social activity with even more television viewing and considerably less homework. There are no Saturday programs at their schools for these students. Even playing sports occupies very little time for most of the students; 40% report no time during the week on sports and 41% spend no time playing sports on the weekend. Slightly more than a quarter play sports on the weekend for three hours or more; considerably more students prefer to just hang out. Opportunities to play sports may be very limited; playing fields other than hardtop playgrounds in disrepair are not in evidence in the areas which these school serve.

Playing sports preempts television, video games, and hanging out in terms of popularity as a summer activity. It may be that pools, rinks, and playing fields supervised by the Metropolitan District Commission in the areas where these students live are available during the summer, but not during the school year. The data overall indicate that the student's choice on how to spend free time is very limited.

Volunteer work is something that 26.5% of the total sample has tried. But the involvement drops off significantly as students advance to higher grade levels. Many educators and other concerned citizens point out that volunteer work is important as a socially desirable and influential activity in its own sake, quite apart from its possible influence on student achievement. If this is so, more opportunities ought to be made available to students to engage in such work. The picture which emerges from the data overall is that students have few choices and little structure to guide productive use of their time.

Extending the school day, week, or year to include more of the same things which presently go on in schools with disappointing results is not the answer. But purposeful, structured activities with appropriate resources and adult supervision ought to be made available to these students.

Recommended Item Revisions

Schools and school systems wishing to survey their students on how they spend their time should consider using different response formats for some of the items. After school activities which are likely to occur daily may be retained in the same format as that shown in item 11--doing chores, homework, watching TV, going out with friends, reading, playing sports, and hanging out. Babysitting should be added to the list, perhaps as two items--babysitting for younger brothers and sisters, and babysitting for another family. Certain after school activities may not occur daily, like working, going to an after school program, and taking lessons. These items should be separated from the others and their response format changed to "how many times each week," "for how long." Despite multiple pilot tests of the instrument, these points of confusion did not surface until the final administration of the questionnaire.

CHAPTER 9

PROSOCIAL AND ANTISOCIAL BEHAVIORS IN THE SCHOOLS

The school is a social environment in which the behavior of its members conditions, as well as reflects, what is valued and what is permissible in that environment. Rutter and his colleagues point out that norms and values can be established in a variety of ways. The chief mechanisms in schools are likely to be: (i) teachers' expectations about the children's work and behavior, (ii) the models provided by the teachers' own conduct in school, and by the behavior of other pupils, and (iii) the feedback that the children receive on what is acceptable performance at the school (Rutter *et al.*, 1979). The present study examined all of these mechanisms, from the students' point of view and the teachers' point of view as indicated on questionnaires, but also through repeated informal observations made by university participants in the study during the course of site visits. In this chapter, the focus will be on models of student behavior, as reported by both students and teachers.

Direct or Indirect Teaching of Values

"Early adolescence offers a superb opportunity to learn values, skills, and a sense of social responsibility important for citizenship in the United States," as the Carnegie Task Force on Early Adolescence (1989) underscores in its recent report. Educators agree that their mission includes teaching values for citizenship. Official statements from school systems about their philosophy or mission often name important values which they seek to develop: regard for human worth and dignity, respect for the rights and property of others, tolerance and appreciation of human diversity, honesty, cooperation, social justice.

More and more educators seek to influence these values directly. Several noted educators have developed materials and approaches to accomplish this. Ryan and Ellenwood (1988) have developed one curriculum which incorporates classic and contemporary works of literature to help students address important issues and confront conflicts which require value judgements; they have also contributed in the development of a second curriculum about relationships called "Loving Well" (1989). Slavin has been long been a leader in the field of cooperative learning (1980, 1988). Wynne and Walberg (1985) offer guidance on school policies that encourage character development and scholarship. Recommending extracurricular "Carnegie units," the Carnegie Task Force advocates youth service--supervised activity helping others in the community or in school--as a requirement in the core instructional programs of all middle schools (1989).

Whether or not schools choose to influence values directly, there is ample evidence that the teaching of values comes with the territory. In her comprehensive review of research on school climate, Anderson (1982) cites numerous studies attesting to the effect of school climate on many student outcomes, including cognitive and affective behavior (Barker, 1963; Brookover *et al.*, 1978; Duke & Perry, 1978; Weber, 1971), but also values (Taba, 1955; Vyskocil & Goens, 1979), and personal growth and satisfaction (Bailey, 1979; Coyne, 1975; Cox, 1978; Vyskocil & Goens, 1979).

Student Behaviors as an Index of School Climate

Taguri's (1968) conceptualization of organizational climate is useful for locating students' prosocial and antisocial behaviors as an index of school climate. Climate is a summary concept which includes the ecology (physical and material aspects), milieu (presence of persons and groups), social system (patterned relationships among persons and groups), and culture (belief systems, values, norms, and meaning reflected in behavior). These student behaviors are both independent variables shaping the social system of the school and dependent variables reflecting the culture of the school.

The student and the teacher questionnaires used in the present study contained parallel sets of items requesting estimates of the frequency of prosocial and antisocial behaviors exhibited by students in their schools. Percentages of students who choose each category on a five-point scale of frequency are given in Appendix B for students' estimates of the frequency of prosocial and antisocial behaviors respectively. Comparable data summarizing the teachers' vantage point on students' prosocial and antisocial behaviors are given in Appendix A.

There are a few items in each questionnaire which are not in the student or teacher counterpart. The items from the teacher questionnaire on showing appreciation of teachers and showing interest in learning were not included on the student questionnaire. The items from the student questionnaire on helping other students with personal problems and helping students who don't speak English talk to others had no parallel on the teacher questionnaire. Of the antisocial behaviors, the items from the teacher questionnaire on sex offenses, and impertinence and discourtesy to teachers did not appear on the student questionnaire. Finally, the item from the student questionnaire on teasing students who get good grades had no counterpart on the teacher questionnaire.

The pro and antisocial behavior items for the teacher questionnaire were developed first. Since readability was not an issue for these educated adults, revisions were not necessary. However, the student questionnaire underwent several pilot tests to improve the level of understanding of the items by the students, many of whom had reading difficulties. Research associates in the field asked the students to tell them which items or words they couldn't understand. Items given various interpretations were split into separate items, and simpler words were chosen to convey our intent. Thus, for example, bad-mouthing and bullying became separate items on the student questionnaire, and "racial incidents" from the teacher questionnaire became "make racial insults" for the student version, arguably changing the referent. The teacher questionnaire was not readjusted to reflect the changes in the student questionnaire. To aid the readers review of the comparisons, parallel items from the student and the teacher questionnaire are presented next to each other in Table 9.1 for the prosocial behaviors and Table 9.2 for the antisocial behaviors. The means are given for teachers' versus students' responses on their respective items.

Inspection of the means in Table 9.1 reveals that students and teachers are generally consistent in their estimates of the frequency of specific prosocial behaviors which students exhibit in school. There are only four comparisons on which teachers and students differ by more than two-tenths of a scale point. Three of these differences may be attributable to lack of parallelism in the items and one to a real difference in perception. Students' "helping out at school" on the student form in contrast with "volunteering" as expressed on the teacher questionnaire showed teachers' estimates give a more positive view than students' report for themselves by a difference of almost seven-tenths of a point on a five point scale. Volunteering is arguably the broader referent, which teachers interpreted to mean offering answers in class as well as more substantial behaviors. Similarly, "student involvement in decision making" from the teacher questionnaire may be a broader notion than "help make class rules"

TABLE 9.1

Summary of Mean Differences Between Students' and Teachers' Perceptions of the Frequency of Students' Prosocial Behaviors

Item #/ S or T	Actual Wording of Items for **Students** versus *Teachers*	$\overline{X}_S$	$\overline{X}_T$	$\overline{X}_S - \overline{X}_T$
36 A/S	**Help out at school**	3.03		-.69
21 A/T	*Student volunteering*		3.72	
36 B/S	**Help plan school activities**	2.80		.19
36 J/S	**Help make class rules**	2.32		-.29
21 B/T	*Student involvement in decision making*		2.61	
36 C/S	**Take care of school property**	2.64		-.16
21 C/T	*Taking care of school property*		2.80	
36 D/S	**Get along with each other**	3.47		.34
21 D/T	*Tolerating others*		3.13	
36 E/S	**Make friends with students of other racial/ethnic groups**	3.77		.13
36 M/S	**Make friends with students who are new to the school**	3.74		.10
21 E/T	*Making friendships across racial and ethnic groups*		3.64	
36 F/S	**Show respect for teachers**	3.40		.32
21 F/T	*Showing respect for teachers*		3.08	
36 G/S	**Help other students learn**	3.06		-.19
21 I/T	*Helping other students learn*		3.25	
36 H/S	**Get into school activities and clubs**	3.13		-.20
21 J/T	*Participating in extracurricular activities*		3.33	

TABLE 9.2

Summary of Mean Differences Between Students' and Teachers' Perceptions of the Frequency of Students' Antisocial Behaviors

Item #/ S or T	Actual Wording of Items for **Students** versus *Teachers*	$\overline{X}_S$	$\overline{X}_T$	$\overline{X}_S - \overline{X}_T$
37 A/S	**Steal things from others**	2.71		-.34
22 A/T	*Stealing*		3.05	
37 B/S	**Destroy school property**	2.97		-.40
37 C/S	**Write graffiti (write on walls)**	3.17		-.20
22 B/T	*Destruction of school property*		3.37	
37 D/S	**Bad-mouth other students**	3.69		.10
37 E/S	**Bully other students**	3.28		-.31
22 E/T	*Meanness and bullying between students*		3.59	
37 F/S	**Fight with other students**	3.53		.15
22 F/T	*Fighting*		3.38	
37 G/S	**Make racial insults**	3.09		.73
22 G/T	*Racial incidents*		2.36	
38 A/S	**Cut class**	2.84		-.58
38 B/S	**Cut school**	2.73		-.69
22 H/T	*Truancy*		3.42	
38 C/S	**Hit teachers**	1.82		-.61
22 I/T	*Physical violence against teachers*		2.43	
38 D/S	**Swear or use dirty words**	3.56		-.32
22 J/T	*Using profane or obscene language*		3.88	
38 E/S	**Use illegal drugs**	1.72		-.48
22 K/T	*Using illegal drugs*		2.20	
38 F/S	**Drink alcohol**	1.73		-.17
22 L/T	*Drinking alcohol*		1.90	
38 H/S	**Cheat on tests**	2.84		-.14
22 M/T	*Cheating on tests*		2.98	
38 I/S	**Disturb class**	3.37		.06
22 N/T	*Creating classroom disorder or chaos*		3.31	
38 J/S	**Smoke in school**	1.99		.04
22 O/T	*Smoking in school*		1.95	

as expressed on the student questionnaire. Nonetheless, it is important to note that students reported the highest percentage by far of responses in the category of "never happens" (41%) for helping to make class rules than for any other activity. Teachers who want more share in decision making for themselves may consider appropriate ways to empower their students--and hold them accountable--as a way of changing the climate of the school for the better.

Students reported higher rates of "getting along with others" than teachers reported "tolerating others," but again the item revision on the student version produced non parallel items. Students' "showing respect for teachers" was worded identically on both the teachers' and the students' versions; still their mean response to this item differed by .32. It appears that students think they are more respectful of the teachers than the teachers think they are.

Prosocial behaviors for which students reported high frequencies (greater than 3.50) included making friends with students of other racial/ethnic groups, and making friends with students who are new to the school. Teachers also reported high frequencies for students' making friendships across racial and ethnic groups. (One remarked: "Big deal! This school has been been integrated for more than twenty years.")

A review of the means in Table 9.2 suggests that teachers generally estimated a higher frequency of antisocial behaviors than students did on the same items. The notable exception, where teachers reported a much lower frequency, occurred for the item on racial incidents. Again the stronger wording on the teachers questionnaires (racial "incident" versus racial "insults" on the student questionnaire) could account for the difference as much as the difference in perspectives. The item "cheating on tests" produced roughly symmetrical distributions for both the students' and teachers' version, but the teachers' distribution was highly peaked with very few responses in the extreme categories, whereas the students' distribution was more rectangular, reflecting frequency estimates across the whole range, from "never happens" to "happens a lot".

The teacher questionnaire allowed space for examples of the prosocial and antisocial behaviors. Some teachers were not inclined to take the time to respond with specific examples, but others wrote extensively. One example which gave a much clearer perspective to what might be considered a sex offense in a middle school (where no rapes or attempted rapes have been reported) is "inappropriate touching." Other examples which gave clearer definition to the indices of prosocial and antisocial behaviors are included in Appendix A.3.

Factor Analysis of the Student Data

Because the data base for student responses was so large, we were able to use factor analysis to investigate whether a smaller number of underlying constructs might explain what the original, larger group of items represent. Since the probability of statistical significance is in part a function of the number of tests performed, it was preferable to reduce the number of variables, and not inflate the probability of finding differences which are simply attributable to chance. Principal components factor analysis of all 14 items of prosocial behaviors combined with all 18 items of antisocial behaviors from the student questionnaire produced six factors with eigenvalues greater than 1.0. Together they accounted for 60.8% of the variance in the original data. This analysis was followed by verimax rotation.

Two factors of antisocial behaviors emerged followed by four factors of prosocial behaviors. They were named as follows:

1. Antisocial--Lesser Infractions
2. Antisocial--Major Transgressions
3. Prosocial--Helping Others Directly
4. Prosocial--Helping with Tasks
5. Prosocial--Friendship and Harmony
6. Prosocial--Showing Respect

The six factors were very "clean" in that the items weighted on each factor with loading usually in excess of .60, or not at all, i.e., close to .00. Very few items loaded on factors with weights of .2, .3, or .4. Therefore, .50 was used as the cut off to include or exclude items on a factor. The results are summarized in Table 9.3, including the items contributing to each factor, the range of possible values, the midpoint on the scale, and the mean for all students. Factor scores were created by adding students' responses on the items contributing to each factor. These six factor scores were used as the dependent variables in 4-way analyses of variance to investigate student differences by school, grade, gender, and race.

TABLE 9.3

Results of Factor Analysis of 32 Prosocial and Antisocial Behavior Items from the Student Questionnaire

Factor Number & Name	Eigen-value	Pct of Var	Cum Pct	#* of Items	Range	Mid-point	Mean
1: Lesser Infractions	10.07	31.5	31.5	14	14-70	42	43.82
2: Major Transgressions	4.35	13.6	45.1	4	4-20	12	7.20
3: Help Others Directly	1.56	4.9	50.0	6	6-30	18	17.77
4. Help with Tasks	1.28	4.0	54.0	4	4-20	12	11.95
5. Friendship/Harmony	1.14	3.6	57.5	2	2-10	6	7.19
6. Show Respect	1.05	3.3	60.8	2	2-10	6	5.99

*Only those items with factor weights > .50 were used to create factor scores on a given factor.

Differences in Students' Perceptions of Their Peers' Behaviors

The very large data base for responses to the student questionnaire (n=1583) permitted statistical analyses which were not appropriate for the teacher questionnaire (n=92). Only one-way ANOVA's by school were used to analyze the teachers' estimates of the frequency of prosocial and antisocial student behaviors. But four-way analysis of variance of the student responses enabled us to examine differences in student behaviors which might be a function of the social system and culture of the school versus a function of milieu, i.e., the characteristics of persons and groups who are present within the school environment. The ANOVA's of behavior variables by school, grade, sex, and race enabled some sorting of possible causes in the accounting for differences.

This capability was important to the study because school climate research is plagued by the phenomenelogical debate over the validity of perceptions as measures of climate. As Anderson (1982) noted, data gathered from individual perceptions are flawed because perception depends on individual differences as well as organizational differences. It has been shown that perceptual data from students differ by sex, grade, and socioeconomic level, among other factors (Herr, 1965). It has also been argued that peoples' perceptions are conditioned by previous experiences, needs, and values (Bloom, 1976; Davis, 1963; Hellriegel & Slocum, 1974; Mitchell, 1967).

Results of the four-way analyses of variance are summarized in Table 9.4. Results will be considered first for those independent variables which are inherently non-manipulable--gender and race, and grade to the extent it is a function of age. Differences by school, the alterable variable, will be discussed last.

Differences by Gender

Females in all four schools were far more likely than males to report that antisocial behaviors of "lesser infractions" (Factor 1) occur ($p<.0001$). Females may be more sensitive to the occurrence of "stealing, cheating, bullying" in their midst. Their reports on the frequency of serious transgressions (Factor 2), including hitting teachers and using alcohol and drugs in school, were not significantly different from male students.

As far as prosocial behaviors were concerned, females were significantly more likely to report helping others directly (Factor 3, $p<.0001$), and helping with tasks (Factor 4, $p<.0001$). There was no significant difference in the extent to which males and females reported "getting along with others" or racial harmony (Factor 5), but on Factor 6, showing respect for teachers and property, males again scored lower than females ($p<.05$), suggesting that males have different standards for these behaviors, and/or that females are more sensitive to infractions of socially acceptable norms for behavior. Stereotypes of feminine behavior are oftentimes negative, but the sex differences in perceptions of student behaviors found in the present study look like positive ones favoring females.

Differences by Race

Race was a significant factor in the analyses of variance of all the pro and antisocial behavior factors except one, the perception of general and especially racial

TABLE 9.4

Summary of Significant F Ratios from Four-Way Analyses of Variance of Student Factor Scores on Prosocial and Antisocial Behaviors, and Results of Duncan Tests of the Significance of Mean Differences for Main Effects: School, Grade, Sex and Race

ANOVA Effects	A School[a]	B Grade	C Sex	D Race[b]	AXC[c]	AXD[c]
Degrees of Freedom	3	2	1	4	3	12
I. Lesser Infractions	12.01^{****} 2<4<1,3	3.83^{*} 6<7,8	12.35^{****} M<F	14.77^{****} A<<OHBW	4.85^{**} M<F, all but Sch 4	NS
2. Major Transgressions	17.72^{****} 2<4<1,3	4.07^{*} 6<7,8	NS M<F	6.40^{****} A<OHBW	6.19^{****} M<F, all but Sch 4	NS
3. Help Others Directly	3.00^{*} 3<2,1,4	18.68^{****} 8,7<6	23.06^{****} M<<F	10.62^{****} WOB<AH	NS	2.95^{****}
4. Help with Tasks	NS	13.70^{***} 7,8<6	13.79^{***} M<F	3.15^{*} W<H	NS	NS
5. Friendship/ Harmony	3.28^{*} 2,1<4	5.56^{**} 8<7,6	NS	NS	NS	1.95^{*}
6. Show Respect	5.75^{***} 3,1<4,2	28.14^{****} 8<7<6	5.30^{*} M<F	7.04^{****} OWHB<<A	NS	1.86^{*}

[a] Consistent with the text, schools are coded School 1, School 2, School 3, and School 4 in the report of Duncan tests.

[b] Race/ethnicity is coded A=Asian, B=black, H=Hispanic, W=white, and O=other in the report of Duncan tests.

[c] No other interaction effects were significant.

$^{*}p < .05$
$^{**}p < .01$
$^{***}p < .001$
$^{****}p < .0001$

harmony among students. All five racial/ethnic groups fell very close to the overall mean of 7.19, fully one scale point above the midpoint on this scale. This perception is corroborated by the teacher data as well as by continuing discussion and observation in these schools. There indeed does appear to be a positive level of racial harmony in the four schools in which blacks and Hispanics are the overwhelming majority.

Differences according to race were pronounced on both factors of antisocial behaviors. In each case Asians reported substantially lower instances of these negative behaviors than any of the other racial/ethnic groups. On Factor 1 (for lesser infractions), Asians averaged ten or more points below the other groups on the 14-item scale whose range is 56 points. On Factor 2 (for serious transgressions), Asians were two or more points below the other groups on the four-item scale with a range of 16 points. Both effects were significant at $p < .0001$. It may be that the Asians deliberately choose to ignore negative behaviors, preferring to "See no evil, hear no evil." But other interpretations are also possible. The Asians, who "tend to keep to themselves," may not be present when the negative behaviors occur and/or they may be focused on their own academic work, not "looking for trouble." All of these interpretations have credibility with observers and adult participants in the study.

Another highly significant difference ($p < .0001$) according to race occurred in the analysis of Factor 3, the prosocial scale for "Helping Others Directly." Asians and especially Hispanics reported significantly higher instances of the positive behaviors than the blacks and "others." The difference was even greater between the Hispanics and Asians on the one hand, and the whites, who scored lowest. If the assumption that Halpin and Croft (1963) made in their original research is valid for the use of findings about school climate, we can assume that the actual, objective behavior is less important than the perceived behavior, because it is the latter that controls the individual's response. This would suggest that the Hispanic and Asian students are more inclined to help others and in fact do so.

Hispanics again scored highest in reporting helping with tasks. This time the difference was not so pronounced, the F ratio being significant at $p < .05$. The test of differences among means showed that the significant difference occurred between the Hispanics, who were the highest, and the whites who were the lowest, on Factor 4.

On the final factor, a measure of showing respect, Asians scored significantly higher than all other racial/ethnic groups. The difference was highly significant, at $p < .0001$, and in the expected direction, consistent with this very positive stereotype for people from Asian cultures.

Differences by Grade

Grade level was significant in the analysis of every one of the six factor scores. Sixth graders reported significantly fewer antisocial behaviors of both a lesser and more serious nature than the seventh and eighth graders. Eighth graders reported higher rates of antisocial behaviors than seventh graders, but not significantly so.

Sixth graders were substantially more likely to report higher frequencies of helping others directly. Their scores on Factor 3 averaged more than 1.5 scale points over the seventh and eighth graders. The sixth graders were also more likely to report higher frequencies of helping with tasks (Factor 4), by a full scale point on average. The differences according to grade level for both of these prosocial behaviors were significant at $p < .0001$.

A significant grade difference with $p < .01$ was observed for Factor 5. This time eighth graders were significantly lower than seventh and sixth graders in their perceptions of general and racial harmony in their schools. Sixth graders had the most positive outlook on this scale, but they were not significantly higher than seventh graders.

As far as showing respect is concerned, eighth graders report significantly lower perceptions of these behaviors among fellow students than seventh graders. In turn seventh graders scored significantly lower than sixth graders. The effect of grade on this variable, Factor 5, was highly significant at $p < .0001$.

While it was not surprising to those who live and work with middle school youth, it is nonetheless troubling that students in the higher grades perceive more antisocial behaviors and fewer prosocial behaviors than sixth graders, whose outlook appears to be more positive. If perception does indeed condition behavior, then schools need to target interventions which will halt the decline in students' positive outlook which occurs between the sixth and seventh grade. There are important changes which occur in the populations served by the four schools in our sample. In most cases the students who are highest achieving academically transfer to one of the more prestigious "examination schools." This exodus is more pronounced in Schools 2 and 4, but if the schools were affecting the students differentially by grade, the differences ought to produce significant school by grade interaction effects. They don't. None is statistically significant, as seen in the fifth column of Table 9.4.

Differences by School

Happily there were also significant differences in the students' perceptions of prosocial and antisocial behaviors according to school, suggesting that schools can shape their environments to foster more positive norms and standards among students, even if some differences in perception are a function of unalterable variables--sex, race, and age. School was a significant effect in the analysis of all the pro and antisocial behavior factors but one, helping with tasks.

There were highly significant differences ($p < .0001$) among schools on the two factors for antisocial behaviors. Analysis of mean differences among schools on the factor of lesser infractions showed that School 2 was significantly lower than the other three schools and that School 4 in turn was significantly lower than Schools 1 and 3. The same pattern of significant differences among means occurred for the factor on more serious transgressions. These differences among schools in the perceptions reported by students correspond with the observations made by the University-based members of the research team who have visited these schools on a regular basis. That School 2 was significantly lower than the other high achieving school, School 4, is particularly noteworthy. School 2 was run like a marine drill camp. Students filed through the halls in straight lines or else. School 4 had a more inviting atmosphere, still orderly, but with an ethic of caring. This is the first of several indications in this research that the two higher achieving schools are decidedly different in their climates. Repeated visits to the school pointed to this difference early on; indeed, the difference was palpable. The quantitative data from students certainly helped to explain this qualitative finding.

The higher frequency of negative behaviors in Schools 1 and 3 was also corroborated by informal observational data during site visits. Interestingly, School 1 was the largest and School 3 the smallest, with 1989 enrollments of approximately

700 and 250 students, respectively. But neither of these schools felt orderly. Students' arrival and departure from school as well as the change of classes and lunch periods were far less orderly than in Schools 2 and 4, whose students appeared to be calmer and more focused on learning. Size might account in part for the higher rates of antisocial behaviors reported for School 1. The University-based project coordinator who became a member of School 1's "Action Team" likened the school's environment to "popping pop corn." "There are so many students bopping into each other, skipping through the halls, excited, and full of energy. They're not necessarily misbehaving, but the environment in their presence is charged."

If size alone were a factor in the differences among schools in antisocial behaviors, and clearly it is not, School 3 would score lowest on these negative outcomes. One reason which might explain why it scores higher on reports of antisocial behaviors is that unlike the other three schools and especially Schools 2 and 4, School 3 is a "walking school" as opposed to a "bussing school." Located in one of the poorest sections of Boston, it serves students many of whom live in the immediate neighborhood, and events in their lives which occur outside of school take over the social dynamics in the school.

An incident which occurred moments before a visit to School 3 by the principal investigator and the project coordinator might illustrate this point. School had just been dismissed, and a fight had occurred on school grounds. Reportedly five middle-school aged boys were beating up a girl the same age. Two teachers from School 3 broke up the fight; the principal ran out to escort the girl back into the building, call her mother, and have her taken home. When we arrived, the principal greeted us warmly, telephone in hand, and apologized that she also had to call the nun who was the principal of the parochial school a block away. None of the attackers were students at School 3; they all attended "St. Patrick's" (an alias for the parochial school).

Good schools must have safe orderly environments, but this cannot be achieved at the expense of running a school like a prison. Doing so would counter a number of needs expressed by the students themselves for which they would like to get help in school. In another chapter of this report, it was noted that students in Schools 1 and especially those in School 3 place significantly higher priority on nonacademic services from the school. Their responses reflect a need for nurturing and a desire for counseling on a host of issues. One member of the research team who had visited School 3 many times returned to the University after an assembly. Seeing all the students together she remarked: "They look like little street people. Students in the other schools are poor, but not like this."

On the prosocial behavior factor for helping others directly, students in School 3 reported significantly lower frequencies than students in the other three schools. The difference was significant at $p < .05$. In light of the foregoing, it may be that the students in School 3 need more caring and nurturing, and their lower scores reflect that deficit, as well as actual lower frequencies in instances of helping others.

On the factor called racial/general harmony, which included the items on getting along with each other and making friendships across racial/ethnic groups, students in Schools 2 and 1 reported significantly lower frequencies of these behaviors than students in School 4. It is especially noteworthy that this factor separated the two academically higher achieving schools, School 2 from School 4. (The latter was highest overall.) It would appear that the very rigid codes of behavior that promoted "law and order" in School 2 did so at a price. While there were significantly lower reports of antisocial behaviors in School 2, there was a lower perception of harmony and friendship in the school's environment. Again, informal observations on a great many occasions confirm this difference.

As far as showing respect is concerned, students in Schools 3 and 1 report significantly lower perceptions of this kind of behavior than students in Schools 4 and 2. Not coincidentally, this split parallels exactly the division between the two schools in academic achievement measures.

Interaction Effects

Out of 36 possible first-order interaction effects, only six were statistically significant, three of these only at the .05 level. By chance, two would be significant at that level. No higher order interaction effects were significant. Since the sample size was very large, and even small differences could be statistically significant, only those meeting more stringent probability levels are reported here.

School by Sex

Two school by sex interaction effects were significant, one at $p < .01$, and the other at $p < .0001$. Both differences concerned antisocial behaviors, the first for lesser infractions, the second for more serious transgressions. On both of these measures, females at School 4 reported lower instances of the antisocial behaviors than did males at their school. In all other schools, females reported higher frequencies on average than the males. Earlier, in the discussion of the highly significant main effect for sex differences in which females reported significantly higher rates of the lesser infractions, it was suggested that females may be more offended by such behaviors and more sensitive to their occurrence. But this interaction effect also suggests that the presence of females in the environment may affect what behaviors take place in their midst. The only school in the sample in which females outnumbered males was School 4. Females constituted 47% of School 1, 41% of School 2, and 43% of School 3, but 52% of School 4. If this is so, the implication for schools wanting to create a safer, more orderly environment is to recruit girls.

School by Race

Analysis of the factor on helping others directly produced a highly significant interaction effect for school by race, at $p < .0001$. All ethnic groups reported higher rates of helping others direclty at School 4. But for other schools, groups reported helping others more only where they constituted a majority or a sizable minority in their school. Thus, Hispanics reported high rates of helping others only at School 1, and those in the racial category called "other" (which includes Native Americans) report high rates of helping at School 3. This group at School 3 included several students who were combination black and American Indian, as was their new principal.

How Teachers View Their Students' Behaviors: Differences by School

The number of usable teacher questionnaires was only 92 (after 10 in School 2 which copied and distributed an earlier form had to be deleted), and 25 items were included for their assessment of students' prosocial and antisocial behaviors. Factor analysis of all 32 prosocial and antisocial behavior items combined was appropriate for the student data base which numbered 1583, and six clear factors emerged.

However, even by separating the teacher items into two groups of 11 prosocial behaviors, and 14 antisocial behaviors, to enable a higher ratio of respondents to items in separate factor analyses, it was not possible to approach the ideal of 10 to 1 respondents per item. It was decided to use the teachers' item responses rather than factor scores as the dependent variables in the analysis of school differences.

One-way analyses of variance were used to investigate differences in teacher perceptions of their students' behaviors among schools. Results of these analyses for antisocial behaviors are summarized in Table 9.5. Significant differences in teacher perceptions among schools were found for only one prosocial behavior. Teachers in School 4 reported significantly higher rates of students' taking care of their school's property than did teachers in Schools 1, 2, and 3. The F ratio of 3.54 was significant at $p < .01$.

Analyses of the antisocial behaviors produced several significant differences at $p < .05$ or beyond. Two additional differences which approach significance at .06 or .07 are also reported, because the trend of differences is very consistent, even in this small sample. Teachers in School 4 report significantly lower rates of student destruction of school property than teachers in Schools 1 and 3 ($p < .01$). Teachers in School 4 also report fewer instances of sex offences by students than teachers in School 3 ($p < .06$). Regarding impertinence and discourtesy to teachers, again teachers in School 4 reported less of this kind of behavior in contrast to teachers in School 1 ($p < .07$). Teachers in School 4 said there was less meanness and bullying among their students than teachers in both Schools 1 and 3 ($p < .05$). As far as fighting among students was concerned, again teachers in School 4 saw less of this behavior than teachers in School 1 and 3 ($p < .01$). The item on truancy yielded the same result; teachers in School 4 were significantly lower in their reports of truancy among their students than teachers in Schools 1 and 3 ($p < .01$).

For the second half of the teacher items on antisocial behaviors, the pattern continued, with teachers in School 4 reporting lower frequencies of negative behaviors; sometimes they are joined by teachers in School 2 at the lower end of the scale, sometimes their responses contrast significantly with only one school, sometimes two, sometimes all three. But each time, teachers in School 4 report the more positive view of their students' behaviors in school. Teachers in Schools 2 and 4

TABLE 9.5

Summary of Significant F Ratios from One-Way Analyses of Variance of Teacher Perceptions of Their Students' Antisocial Behaviors, and Results of Duncan Tests of the Significance of Mean Differences Among Schools

Item on Teacher Questionnaire	Significant F	DuncanTest[a]
A. Stealing	N.S.	
B. Destruction of school property	4.77^{**}	4<1,3
C. Sex offenses	2.39^{+}	4<3
D. Impertinence and discourtesy to teachers	2.38^{+}	4<3
E. Meanness and bullying between students	3.05^{*}	4<1,3
F. Fighting	4.56^{**}	4<1,3
G. Racial incidents	N.S.	
H. Truancy	4.10^{**}	4<1,3
I. Physical violence against teachers	3.79^{**}	2,4<3,1
J. Using profane or obscene language	3.05^{*}	4<1
K. Using illegal drugs	N.S.	
L. Drinking alcohol	N.S.	
M. Cheating on tests	N.S.	
N. Creating classroom disorder or chaos	6.54^{***}	4<1,2,3
O. Smoking in school	3.22^{*}	2,4<1,3

[a] As in the text, schools are coded School 1, School 2, School 3, and School 4.

$^{+}p<.07$
$^{*}\ p<.05$
$^{**}\ p<.01$
$^{***}p<.001$

reported significantly less physical violence against teachers than teachers in Schools 3 and 1. As far as using profane or obscene language was concerned, Teachers in School 4 reported significantly less of this among their students than teachers in School 1 ($p < .05$). Teachers in School 4 reported significantly lower rates of their students' creating classroom disorder or chaos than all of the other three schools, including School 2 . The difference was very significant at $p < .001$. Analysis of mean differences on the item for smoking in school placed Schools 2 and 4 significantly lower in teacher reports of this behavior than School 1 and 3.

Finally, it is interesting to note those items which teachers chose to leave blank. (They were advised at the outset that they should feel free to omit responses to items which they felt might threaten or incriminate them, even though the instrument was given anonymously). Fifteen teachers omitted reports on the frequency of sex offenses; 7 on the item of racial incidents; 17 on using illegal drugs; 19 on drinking alcohol; 9 on cheating, and 14 on smoking in school. Not surprisingly, most of these items with large numbers of missing responses did not yield significant differences among schools. What these items appear to have in common in contrast to the other antisocial behaviors is that the former group of items include behaviors which the teacher might be expected to prevent (cheating) as opposed to unlawful behaviors which they should report to authorities including racial incidents, sex offenses, using illegal drugs, drinking alcohol, smoking in school. Using bad language or disrupting class pale by comparison in terms of their severity.

Summary and Discussion

Students' prosocial and antisocial behaviors were used as an index of school climate. These behaviors shape the social system of the school and reflect its culture, including its values and norms for permissible behavior. To assess these behaviors, parallel sets of items were used in the student and teacher questionnaires requesting their estimates of the frequency of prosocial and antisocial behaviors exhibited by students in their schools. These perceptual data were used as direct indicators of normative climate for each school. Observations during site visits by University-based members of the research team were used to corroborate the perceptual data from student and teacher groups.

Consistency of Students' and Teachers' Perceptions

Students and teachers were generally consistent in their assessments of students' prosocial behaviors in the schools. Differences which occurred could be attributed to differences in the wording of the items, after changes were made in the student questionnaire to simplify the reading level. One difference between perceptions of students versus teachers occurred on identically worded items--students reported that they showed more respect for teachers than the teachers thought they did. Teachers were consistently more negative in their assessments of their students' antisocial behavior; students did not see themselves in such an unfavorable light.

Results of previous studies about the consistency of perception of school climate among groups of respondents have been mixed. Some researchers have found that students, teachers, and administrators differ among themselves, but within one group are consistent (Ellet et al., 1977, Ellet & Walberg, 1979). Other researchers report that student and teacher measures are associated with more objective measures of school climate, indicating that both groups perceive the school's climate in the same way (Davis, 1963; Perkins, 1976). Results from the present study suggest that both findings may be valid; it depends on the target of the perception, and precisely how the perception is measured. Teachers and students were similar in their assessment of most prosocial behaviors. They were somewhat more discrepant in how they rated antisocial behaviors; most likely, teachers were more sensitive to, more offended by, and/or more threatened by, their students' antisocial behaviors than the students were by their own peers' behavior.

Perceptions as a Function of Individual's Attributes

Previous studies on perception of climate also suggest that variance may be a function of individual differences as well as organizational differences (Hoover, 1978; Moos, 1979). If Herr (1965) was correct, people will generalize from their own experience and environmental press, and differ in their perceptions according to sex, race, SES, age, and grade. These are largely unalterable variables. The present study examined students' perceptions of behaviors with a four-way ANOVA design which enable investigation of effects by sex, race, grade, but also school. These analyses produced a host of statistically significant results.

Three gender differences were highly significant at $p < .0001$. One of these was significant even well beyond that level. By a substantial margin, females were far more likely than males to report that students in their schools engaged in behaviors which involved helping others directly. Also by a substantial margin they were more likely than males to report helping with tasks, probably because the females themselves engage more frequently in the helping behaviors. The females were also significantly more likely than males to report antisocial behaviors in their midst, arguably because these behaviors are more objectionable to the females.

Four differences attributable to race/ethnicity were highly significant at $p<.0001$. Three of these separated the Asians from all other racial/ethic groups. Asians were far less likely to report antisocial behaviors in their schools, including those which were classified as relatively lesser infractions as well as those called major transgressions. It was suggested that Asians may be acculturated to ignore such violations, preferring to "see no evil, hear no evil," or they may not be present when these negative behaviors take place. Several teachers and administrators in the schools have noted in conversation and in written remarks on questionnaires that the Asians oftentimes "keep to themselves." Asians were far more likely than all other racial/ethnic groups to report showing respect, a finding which is consistent with this positive stereotype for Asian cultures. Another highly significant difference by race separated the Hispanic and Asians from the others in their reports of helping others directly. Finally whites were less likely than Hispanics to report helping with tasks.

Grade differences were statistically significant in the analysis of all six factor scores. In every case, the sixth graders fell toward the more socially desirable position, reporting fewer antisocial behaviors and more prosocial behaviors taking place than seventh and eighth graders. Again, if perception is a valid indicator of objective climate, and if climate conditions how people behave, then the sixth graders are behaving in more socially desirable ways than students in the next higher grades. The grade differences were especially significant for the prosocial behaviors, indicating that the younger students probably do have a more positive outlook and are more disposed to act in prosocial ways by helping others, helping with tasks, getting along, making friends, and showing respect. Here is where interventions need to be targeted--the sixth grade--in order to sustain these positive behaviors.

Epstein, in personal communication, (1990) commented that these findings regarding grade differences are especially significant, because most previous studies which point to negative changes between sixth and seventh grades compared students who were not in the same schools--sixth graders in K-6 or 4-6 configurations of grades, versus seventh graders in junior high schools or 7-12 schools. Even in longitudinal studies, there was concern that the school might account for the difference as much as the age. The present study conducted in middle schools which include grades 6, 7, and 8 suggest that differences can be attributable to both grade and school (as well as sex and race).

Differences Attributable to School

Differences among schools were significant in the analysis of all of the prosocial and antisocial behavior factors except one. Highly significant differences in both lesser and more serious antisocial behaviors separated the academically higher achieving schools (Schools 2 and 4) from the two which were less successful academically. Students in the latter two schools (Schools 1 and 3) reported much higher frequencies of antisocial behaviors in their midst. But there was another significant separation between schools on these variables as well, one which merits further attention. While the two high academic schools were significantly lower in antisocial behaviors than the other two schools, they were significantly different from each other as well. The school which ranked second on all achievement measures (School 2) when the more appropriate comparisons were made by program (bilingual, special education, advanced, etc.) is the school which is lowest by far in antisocial behaviors. However, it is also lowest when it comes to the measure of friendship and racial/general harmony among students. To the outside observer, this school appeared to be run "like a marine drill camp," placing too high a priority on law and order. Its students were given few social freedoms in school--like single file changes of class with no talking--and this policy may have taken its toll on the prosocial behaviors which involve nurturing.

Significant differences in prosocial behaviors among schools consistently favored School 4, the top ranked academically. Its students' means for reported frequencies were always on the positive side of any significant differences. The other schools had mixed results. School 3, the smallest and probably poorest school in terms of its students' level of disadvantage, scored significantly lower than Schools 2, 1, and 4 (ranked from low to high) in the students' perception of the frequencies of behaviors which involve helping others directly. This difference may reflect a serious deficit among the students in School 3 as much as objectively higher frequencies of helping behaviors in the other schools.

Students in Schools 2 and 1 were significantly lower than students in School 4 in their reports of getting along with each other and making friendships across racial and ethnic groups. Independent observations also suggested that School 4 was a friendlier, more harmonious place to be. It is especially noteworthy that this top ranked school academically appeared to strike a balance in achieving an orderly but also a friendly environment. On the final measure of prosocial behavior, showing respect, students in Schools 3 and 1 reported significantly lower frequencies of such behaviors than students in Schools 4 and 2. This highly significant difference favored the academically higher achieving schools over the lower achieving schools.

The Value of School Climate Research

While there is general agreement among researchers, reviewers, and practitioners as to the importance of school climate for school effectiveness, there has been disagreement on whether it is worth studying. Critics have contested that school climate is neither measurable (Rutter, et al., 1979; McPartland & Epstein, 1975) nor manipulable (Haller & Strike, 1979). Results from the foregoing analyses suggest otherwise. Indicators of prosocial and antisocial student behaviors which were used in the present study produced results which were consistent, readily interpretable, and cross validated by conversations and formal interviews with participant reviewers and by independent observations. Most importantly, the indicators revealed important and meaningful differences among schools, as well as genders, racial/ethnic groups and grade levels.

The failure of earlier studies to find significant school effects may have been the result of inadequate measurement, too few variables, or the wrong variables. Best known of these earlier studies, the Coleman Report (Coleman et al., 1966) inquired about who (persons and their attributes like socioeconomic status and race) and what (classrooms, commonroom, special function facilities, books, etc.) were in the building, rather than how participants used resources or how they related to one another. In Rutter's opinion (1980), these were grave omissions of previous studies which "failed to take into account anything about the internal life of a school: its attitudes, values, mores or qualities as a social organization. It is just these social, rather than physical variables that do account for much of the variation between schools.

Implications for Practice

Critics of the value of school climate research considered it a burden to policymakers who would prefer to know how to manipulate school climate to effect positive outcomes. As Haller and Strike complained: "It is unclear, for example, who (much less how) an administrator or policy-maker might go about changing an organization's climate" (1979, p. 236). While it was not an experimental study, the present study has yielded numerous school differences on climate variables which suggest important implications for practice.

It would appear from the present study of urban middle schools that high achieving schools must have orderly environments unencumbered by antisocial behaviors. However this is not enough. To maximize potential, the schools should also have an ethic of caring, habits of helping others, getting along and making friendships across racial and ethnic groups. These prosocial behaviors distinguished between the first and second ranked schools, the top ranked school appearing to have both the necessary and the sufficient conditions. The lower achieving schools had neither.

Many schools do know how to maintain law and order, but as Firestone and his colleagues (1990) have observed, "while order and high expectations are important, an expanded view of school effectiveness must be taken if we are to serve at-risk students well....When a get tough orientation is overemphasized, safety is too often purchased at the price of personal freedom and self respect."

CHAPTER 10

HOW TEACHERS AND PRINCIPALS CONTRIBUTE TO SCHOOL CLIMATE

At both the classroom and the school level, teachers exert pervasive influence on students' behavior. Their influence includes not only motivating students academically and promoting their achievement (or failing to do so), but also establishing and reinforcing norms for social behavior as expressed in myriad ways, for better or worse, both subtle and blatant. Teachers' influence on climate is not a matter of choice; it comes with the territory. Rutter *et al.* (1979) concluded that the chief mechanisms by which norms and values are established in schools are teacher expectations, the models provided by the teachers' own conduct, and the feedback which children receive on their performance. Barth (1990) goes so far as to say that "the quality and character of a school and the accomplishments of its students have more to do with the nature of the adult relationships in a school than with any other factor."

Newmann (1987), summarizing findings from research conducted by the National Center on Effective Secondary Schools, underscores that generating student engagement is the central task for schools. "Unless students put forth serious effort, with a commitment to the value of mastering schoolwork, they are unlikely to learn." Newmann and others (Ekstrom, Goertz, Pollack, & Rock, 1986; Firestone, 1989; and Noddings, 1989) present convincing arguments that the school's success at this task requires substantial attention to the social psychological dimensions, and not just the academic dimensions, of school life.

The social psychological dimensions of schools appear to be particularly important for students at risk for school failure or dropout. The profile of student characteristics which predict school failure includes behavior problems, delinquency, low skill levels, a history of poor achievement, low socioeconomic status, and minority group membership (Ekstrom, et al., 1986). But now these characteristics of individuals are being examined in combination with characteristics of schools which may themselves be partly responsible for students' academic failure. This shift in thinking is reflected in the very language used to describe the concept; we no longer speak of students with a "deficit" or "disadvantage," we speak of students "at risk," of negative consequences of some mismatch between their own and the school's characteristics.

Metz (1983) paints a vivid picture of this mismatch when she describes the experiences of minority students in schools as ones that force them to choose between the culture with which they come to school and the one presented to them by teachers representing the mainstream white culture. These children pull away from the teacher's culture and set up strong peer norms and social ties that support their home culture over the teacher's. Students who observe that race and class are obstacles to success see little point in striving for academic achievement, which may only alienate the few who can do well in a competitive context. In order to maintain their pride, students who are increasingly less capable of competing, proclaim their disdain for the academic enterprise.

Coleman (1987) has argued that students at risk of school failure are the very ones who stand to gain the most from the social capital which the school needs to provide, since families are no longer well equipped to do so. Such vulnerable students may be even more responsive to positive social and educational environments than advantaged students whose homes extend the achievement orientation of their schools and provide moral and social guidance as well. Entwisle et al. (1987) documented special gains for black children whose kindergarten experience was more influential than that for white children, and Riehl and Grannis (1989) extended the finding of differential gains to the academic performance of middle school students enroled in dropout prevention programs who were more sensitive to their schools' environments.

Major studies and reviews of school effectiveness literature have acknowledged the importance of high expectations and safe, orderly environments for some time now (Edmonds, 1979; Cohen, 1983; Purkey & Smith, 1983; Good & Brophy, 1985), but recognition of the importance of a caring environment, especially to students at risk, is more recent (Firestone, Rosenblum & Webb, 1987; Firestone, 1989). In a field study of 10 urban high schools, Firestone and Rosenblum (1989) noted that teachers and students make a variety of commitments that affect their work, and that these are mutually reinforcing; if one is low, it will depress the other. In addition to order and high expectations, factors contributing to cycles of commitment included relevance, respect and affiliation, administrative support for teachers, consistent and fair treatment of students according to clear rules, and having influence or a sense of control over one's work.

Autonomy and discretion in the classroom are very important to teachers (Corbett, Dawson, & Firestone, 1984), and at this level they exert great influence on student behavior. As Newmann (1987) argues, "Student engagement is most directly affected by the quality of interaction students have with teachers. To the extent that teachers show high expectation, support, fairness, and sensitivity to students' perspectives, students will work." But some of the teachers' influence must be orchestrated by the principal, whose role is critical in transforming adversarial relationships into cooperative and collegial ones (Blum, 1986). As Chub points out: "In high-performance schools, decision making is significantly more democratic, teachers are more involved and influential in establishing disciplinary codes, selecting textbooks, designing curricula, and even in choosing their colleagues than are teachers in low-performance schools." In high achieving schools, relationships between teachers and principals are more cooperative. The principal occupies a central position of leadership, engaging in and modeling the positive behaviors we want teachers and students to adopt.

Assessing the Influence of Teachers and Administrators on School Climate

Rewards and punishments constitute public statements about the behaviors which schools wish to encourage or discourage in students. These are communicated both at the building level and the classroom level. Norms for behavior are also communicated in more subtle, yet powerful ways. The teachers' sense of shared mission, their regard for students, evidence of collegiality, and control over one's work were among the factors assessed in the questionnaire administered to teachers and in the semistructured interviews. Principals and other administrators were also queried about these issues, their disposition toward sharing power, and the structures and schedules which might promote cooperative and collegial behaviors among teachers. The extent to which students perceived these aspects of behaviors among the adults in their midst were also included in several sections of the student's questionnaire. Results from all of these sources are addressed in the sections which follow. The results are grouped around four themes: commitment to students; respect and affiliation among teachers; administrative support for teachers; and loyalty to one's school.

Commitment to Students

Student/Teacher Relationships

Without question, the vast majority of teachers in this sample of urban middle schools care about their students or they wouldn't be there. The first of these powerful signals came from the teachers' response to the set of items in section 17 of the teacher questionnaire. Asked to rate how important 14 issues are for job satisfaction, more than 91% of the teachers chose the highest category of importance for teacher/pupil relationships, and the balance choose the next highest point on the scale. This item was assigned significantly higher importance than any other item. It was also the issue with which teachers expressed the highest level of satisfaction.

While this positive response may be reflecting social desirability on the teacher questionnaire, the intensity and enthusiasm of teachers for their students as revealed in the interviews could not have been faked. Even those teachers judged to be "burned out" on the job still cared about the students. Asked: "What do you like about teaching here?", almost all of the respondents said "The students!" Only one complained of the perception that high schools in the system get more of the resources, but even she listed "the students" as her reason for being there and liking it. The following remarks from individual teachers are representative:

> "The students keep me creative."
>
> "The kids, they are reachable.""
>
> From a totally burned out teacher, nonetheless, "the age of the kids, the enthusiasm of the students."
>
> "My students, my kids:"
>
> "I've had opportunities for administrative positions, but that puts me too far from the kids. I love the kids."
>
> "The aches and pains of puberty are everywhere."
>
> "The kids; they're racially diverse. You either love or hate this age group; no one wants it but I love it. You have to be totally fair and consistent."
>
> "The students. They're the reason why I'm here. I tell my students, "You don't work for me, I work for you!"
>
> "We have great students here."

Conversations with principals echo the same sentiment. On a first meeting with one principal in the midst of some chatter, introductions, and small talk when a group was assembling as their schedules would permit: "Do you have any children?" "Yes, I have 700 hundred!" She was referring, of course, to the schools' student enrollment.

Shared Responsibility for Student Achievement

That students' academic achievement and moral development are central to their professional responsibilities is evident in teachers' assessment of their own jobs. Asked to rank what the most important aspect of their job *is*, 79.5% said "To help students learn" was the top priority; and a total of 77.8% ranked teaching values to students as first or second in importance. "Taking care of students" (by way of offering counseling or social services) was rated a distant third, and "being a friend to students" an even more distant fourth. Asked what their job *should be*, teachers rated helping students learn even more highly, with 86% choosing it as the top ranked responsibility. The importance assigned to teaching values remained about the same, but the care giving services assumed considerably lower importance in terms of what teachers felt their responsibilities should be.

Students clearly recognize the primacy of the academic mission of the school, as evidence by their responses to several items on the student questionnaire. Asked to identify the three most important reasons they come to school, students say they are there primarily "to learn" (93%), "to get a good job in the future" (74%), and "to get into college" (70%). The goal of learning is also underscored in students' assessments of the teacher's job as well as their own job in school. The teacher's job is first and foremost "to help us learn" (98.1%), and second "to teach us right from wrong" (51.5%). Students say their own job in school is "to get an education" (93.9%), and "to study hard" (77.0%).

What Students Think Teachers Care About

It is interesting to note that there are no significant differences among schools in the students' assessment of what teachers' and students' jobs *should* entail. Students in lower achieving schools report the same pattern of responses as students in the higher achieving schools. However, there are important differences in their

TABLE 10.1

Results of Factor Analysis of Student Perceptions of the Ways Their Teachers Promote Learning

Factor Number & Name	Eigen-value	Pct of Var	Cum Pct	Items on the Factor	Weight
1: Encourage Academic Achievement	2.66	29.5	29.5	A. Tell students to try hard to do better on tests	.73
				D. Tell students to do extra work so that they can get better grades	.63
				E. Make students work hard to get good grades	.70
				F. Try to help students who do badly on their school work	.68
				G. Think learning is important	.65
2: Promote Competition, Independence	1.37	15.2	44.7	B. Tell students to try to get better grades than their classmates	.57
				C. Do not care if students get bad grades	.53
				H. Allow students to choose what they want to work on	.67
				I. Expect students to work on assignments on their own	.58

perceptions of what their teachers actually *do* with respect to student achievement. Section 39 of the student questionnaire included nine items on what students think teachers do to to promote student learning and what practices they use to promote it.

Subjected to factor analysis, these items yielded two distinct factors, one on how teachers encourage academic achievement, and the second on whether students perceive that their teachers promote competition and independence. The items contributing to each of these factors and their weights are given in Table 10.1. Factor scores were calculated for each student by adding their raw scores on the items identified for the factor. Then four-way analyses of variance were used to investigate differences in students' perceptions by school, by grade, by sex, and by race.

As reported in Table 10.2, there were no significant differences among schools in students' perceptions of whether their teachers encourage academic achievement. However, all of the other main effects were significant in the analysis of scores on Factor 1. Sixth graders were significantly higher than seventh graders and in turn eighth graders in their perceptions that their teachers encourage academic achievement. Females reported higher levels of teacher encouragement than males. Asians said their teachers encourage academic achievement to a significantly higher extent than all other racial/ethnic groups, and Hispanics scored significantly higher on this factor than blacks, whites, and the "other" racial category. These significant differences by grade, by sex, and by race involved no significant interaction effects.

In the analysis of students' scores on Factor 2, there were significant main effects for school, sex, and race, but not grade. Overall school differences in students' perceptions of the extent to which teachers promote competition and independent work among students were highly significant. Consistent with data from numerous other sources, School 2 is seen by its students as one in which teachers promote high levels of competition, significantly more so than students report for Schools 3 and 1; students in School 4 report lowest levels of all. Males perceived significantly more competition than females, a difference which is consistent with cultural ascribed values. Among racial/ethnic groups, whites reported that their teachers promoted competition and independent work to a lesser extent than "others," Asians, or Hispanics; and blacks scored significantly lower than Hispanics on this factor. However these overall differences need to be qualified as reported in Table 10.2, since interaction effects were significant as well.

TABLE 10.2

Summary of Significant F Ratios from Four-Way Analyses of Variance of Student Factor Scores on Perceptions of How Their Teachers Promote Learning, And Results of Duncan Tests of the Significance of Mean Differences On Significant Main Effects: School, Grade, Sex and Race

Significant Effects	df	F	Duncan Tests of Mean Differences
FACTOR 1: Teachers Encourage Academic Achievement			
School	3	NS	
Grade	2	14.62****	Grade 8 < Grade 7 < Grade 6
Sex	1	11.96****	Males < Females
Race	4	5.09****	Whites, Blacks < Hispanics < Asians
No interactions			
FACTOR 2: Teachers Promote Competition, Independent Work			
School	3	7.45****	School 4 < Schools 3, 1 < School 2
Grade	2	NS	
Sex	1	20.91****	Females < Males
Race	4	6.96****	Whites < Others, Asians, Hispanics; Blacks < Hispanics
School X Grade	6	2.70*	Variable pattern only for School 3
School X Sex	3	5.41***	Males @ School 2 high; Females @ School 4 low.
School X Race	12	3.14****	Function of race; races not equally distributed among schools

$^{*}p < .05$
$^{**}p < .01$
$^{***}p < .001$
$^{****}p < .0001$

Rewards and Punishments

At the building and classroom levels, schools and teachers reinforced students' behavior publicly by the rewards and punishments they issued. The expressed or perceived reasons for which the rewards and punishments were given tell students what they should and shouldn't do in school, what counts, what is valued. Items #25 through 32 on the Student Questionnaire asked students to report on the nature and frequency of rewards and punishments in their schools. Their responses are summarized in Appendix B.4. Students reported receiving recognition from their schools for doing well at rates that are consistent across all four schools; 44% of the students said they were rewarded, and 52% said they were not. Asked what were they rewarded for, the students' answers did vary significantly by school. In Schools 1 and 2, the most frequent reason was for academics; in School 3 it was art, and in School 4 it was accomplishments with computers. Academic excellence was the principal reason overall, followed by "other," a category which students used to cite computer use and perfect attendance. Of the 44% of students who reported receiving one or more rewards, 38.2% said it was for academics 30.4% for "other," 20.3% for sports, 13.7% for art, 8.9% for music, and 1.9% for drama.

Significantly more students reported being rewarded by their teachers (55%) for doing well than by the school (only 44%). Of the students whose teachers rewarded them for one or more reasons, 44.0% said it was for classwork, 23.2% for homework, 26.8% for tests, 34.6% for good conduct, 23.2% for helping out, and 4.9% for something else. Students at School 3, the smaller, predominantly black school, reported significantly higher rates of being rewarded by their teachers than students in the other three schools. The bases for the awards were also significantly different across schools. In School 3, rewards were more likely to be given for classwork and for good conduct than in other schools. In School 4, the school with highest academic achievement overall, rewards were significantly less likely to be given for classwork and good conduct--they are taken for granted--but significantly more likely to be given for good test performance and for helping others, as compared to the other three schools.

A significant distinction between Schools 3 and 4 also appeared in the analysis of how teachers express these rewards to students. In School 3 students were far more likely (40.7%) and students in School 4 far less likely (24.4%) to receive rewards in the form of "small but fun prizes" than the total reported for students over all four schools (32.0%). The rates of tangible reinforcement corresponded closely but inversely with the rankings of the four schools on student achievement measures. Intangible or symbolic expressions of reinforcement, like teachers' writing nice comments on homework assignments or tests, and displaying students work were more likely to be reported in the higher achieving schools, especially School 4. Overall, students across all four schools reported receiving the following kinds of rewards from teachers: 32.0% received small prizes; 55.3% had work displayed; 18.9% said teachers sent nice letters home; 59.1% said teachers wrote nice comments on their test or homework papers; and 11.6% reported some other reward.

Knowingly or by instinct, teacher appeared to be practicing the research finding that positive reinforcement is more powerful than negative reinforcement. They rewarded students more frequently than they punished them. Almost half of the students (48.2%) reported that they have never been punished by their teachers; 44.0% said "sometimes;" 5.8% said "a lot;" and 1.9% did not respond. Significant differences appeared in these responses by school. Students in School 1, the largest school with a substantial Hispanic enrollment, had 54% of their students reporting never having been punished by their teachers; of those who were, only half as many (3.9%) reported being punished a lot as compared with students in School 2 (8.0%)and School 3 (8.3%). Students in School 2, whose achievement was consistently second to that of students in School 4, reported the highest rates of punishment by teachers, 51.1% reporting "sometimes" and an additional 8.0% reporting "a lot." Numerous observations combined with teacher interviews and conversations with the administrators confirm that School 2 emphasized law and order, and violations were dealt with promptly.

Asked what one way most teachers in their schools punish students, the vast majority of students (77%) said "by keeping students after school or after class." This rate was significantly higher than average for School 4 (83%), a finding which was confirmed by their vice-principal. Students at School 3 reported a significantly higher than average rate of teachers sending students to the principal's office as a means of punishment (10.6% versus 7.4% overall); that rate was significantly lower for students in School 4 (4.1%) where reportedly teachers did not resort to this punishment very frequently. Other forms of punishment were also used sparingly in all schools: 1.5%

of the students say teachers punish them by assigning extra work; .9% by withholding gym or recess; 2.8% by talking to students privately; .9% by talking to students in front of everyone; and 3.5% by some other means. However, 4% to 5% of the teachers in all four schools reportedly resort to yelling at students as a form of punishment.

School level punishments are reserved for more serious and/or sustained infractions, such as carrying a weapon, fighting, smoking, or substance abuse in school, and the punishment is more severe--suspension. Most of the students (85.5%) said they had not been suspended in the last year, but of those who said they had (13.3%), significantly more than average came from School 3 (20.6%) and significantly fewer than average came from School 4 (8.2%). School 3 is a small, predominantly black, neighborhood school which had experienced more than its normal level of turmoil in the year student questionnaires were administered. School 4, which was more racially balanced among minority groups, continued to enjoy its distinction for higher levels of student achievement. It was also the only one of the four schools which enrolled more females than males; males were almost twice as likely as females to be suspended.

Suspensions also correlated significantly with grade and with race. Seventh and eighth graders were about twice as likely to be suspended (15.0% and 18.2% respectively) as sixth graders (8.2%). Blacks were suspended at a rate which was approximately four times that for Asians, three times that for whites, and twice that for Hispanics. The respective percentages were 20.9%(black), 4.0% (Asian), 7.8% (white), and 10.4% (Hispanic). It could not be determined from the data whether students of certain racial/ethnic groups engaged more frequently in major transgressions, or whether schools discriminated against certain groups by applying the rules unevenly, or both.

Respect and Affiliation Among Teachers

Just as children learn ways of relating to people by watching their parents, students are influenced by and model the social interactions displayed by teachers and other adults in schools. Teachers who don't like each other and don't respect each other, and who act that way in front of students, communicate powerful negative messages to students about personal values and the value of schooling as an enterprise. However, among teachers who demonstrate high levels of collegiality, commitment to each other, to students, and to their work is strong (Firestone & Rosenblum, 1988).

Teachers' Assessment of Collegiality by Questionnaire

Collegiality among teachers was assessed by a set of items on the teacher questionnaire, in teacher interviews, by observation, and in selected items on the student questionnaire. Percentage distributions of frequency of occurrence for the 14 items on collegial behaviors reported by teachers in all four schools are shown in Table 10.3. Responses were keyed so that a one meant "a lot" and a five meant "almost never." Factor analysis was used to identify a smaller number of underlying scales among these items. Results of this analysis are reported in Table 10.4, along with a summary of results from one-way analyses of variance by school on the teachers' factor scores for collegiality. Duncan tests of the significance of differences among means were used to determine which schools reflected more collegial behaviors. Although lower scores reflected more collegial behaviors, the ordering of schools by Duncan tests in Table 10.4 indicates which schools are more collegial.

The first factor to emerge from factor analysis of the 14 items on collegial behavior on the teacher questionnaire was entitled "Interpersonal Behaviors." It had a very high eigenvalue of 5.46, accounted for 39% of the variance and pulled strongly worded, positive items like "engage, exchange, greet, share, step in for" referencing other teachers; all items had unusually high weights ranging from .71 to .86. Analysis of variance using scores on this factor as the dependent variable produced an F ratio significant at $p < .03$ which differentiated School 4 from School 3, the former assessed by its teachers as more collegial.

Factor 2, accounting for 15.4% of the variance in the 14 items, designated task oriented behaviors--ones in which teachers work together to develop curricula, construct tests, or plan new programs, but not complain or joke about working conditions. It was a surprise to some reviewing this result to find that joking about difficult situations weighed negatively on this scale. It would seem that a sense of humor would be a tremendous asset in urban middle schools. However, if it is combined with sarcasm or lack of commitment, humor may demoralize or offend others. One teacher, observed by the project director at the completion of the administration of student questionnaires, handled a miscue on the changing of classes

TABLE 10.3

Percentage Distribution of Teachers' Responses to Items on Collegial Behaviors

The Extent to Which Teachers:	Percentages				
	a lot		sometimes		almost never
A. Engage in social conversation	32.6	19.6	39.1	05.4	03.3
B. Exchange ideas about teaching	18.5	21.7	38.0	12.0	09.8
C. Discuss problems about individual students	40.2	32.6	20.7	04.3	02.2
D. Make negative remarks about other teachers	19.5	10.3	34.5	21.8	13.8
E. Greet each other warmly	25.6	28.9	32.2	08.9	04.4
F. Complain about working conditions	34.8	18.5	29.3	10.9	06.5
G. Joke about difficult situations	25.3	25.3	38.5	04.4	06.6
H. Discuss personal problems with each other	05.7	11.4	45.5	22.7	14.8
I. Share teaching materials	13.3	16.7	46.7	12.2	11.1
J. Discuss suggestions for new school programs	12.0	15.2	33.7	20.7	18.5
K. Insult other teachers directly	04.3	06.4	25.5	23.4	40.4
K. Develop curriculum materials together	02.2	11.0	36.3	20.9	29.7
L. Work on test construction together	02.2	04.4	20.9	16.5	56.0
M. Step in for other teachers in emergencies	29.3	34.8	20.7	12.0	03.3

TABLE 10.4

Results of Factor Analysis of 14 Items on Collegial Behavior Reported by Teachers And Summary of One-Way ANOVA's and Duncan Tests by School

Factor Number & Name	Eigen-value	Pct of Var	Cum Pct	Items on the Factor	Weight
1: Interpersonal Behaviors	5.46	39.0	39.0	A. Engage in social conversation	.77
F = 3.09; p < .03;				B. Exchange ideas about teaching	.75
(Sch 4 < Sch 3)*				C. Discuss problems about individual students	.83
				E. Greet each other warmly	.86
				I. Share teaching materials	.80
				N. Step in for other teachers in emergencies	.71
2: Task Oriented Behaviors	2.16	15.4	54.4	F Complain about working conditions	-.72
F = 2.47; p < .06;				G. Joke about difficult situations	-.63
(Sch 4, 1 < Sch 2)*				J. Discuss suggestions for new school programs	.57
				L. Develop curriculum materials together	.84
				M. Work on test construction together	.84
3: Unprofessional Behaviors	1.61	11.5	65.9	D. Make negative remarks about other teachers	.62
				H. Discuss personal problems with each other	.73
				K. Insult other teachers directly	.64

*For Factors 1 and 2, lower means indicate more collegial behaviors.

with apparent deftness and humor. Asked about his role in the school, other observers noted he was not on the principal's leadership team, nor was he involved in any of the school's numerous, externally funded, special projects. Several months later, an interview transcript explained why. He expressed no commitment to the school or its mission. His teaching job was a way to bide time during the school year until he could make "important money" on his "real" job during the summer.

The F ratio from one-way analysis of variance of scores on Factor 2 among schools was significant at $p < .06$. (Liberty has been taken in relaxing the conventional .05 level for reporting of significant results; because the n's for teachers are small, the and the degrees of freedom therefore limited, a fairly large difference is required for statistical significance.) Teachers in Schools 4 and 1 reported significantly higher rates of task oriented collegial behaviors than teachers in School 2. This was corroborated in interviews with teachers and principals. Teachers in School 2 had no common planning time; students were assigned to classes exclusively on the basis of MAT-Reading scores, and test performance was of overriding importance in the School. It was not a collegial environment. In contrast, teachers in the higher achieving School 4 had been organized in clusters for several years; the principal made sure that each cluster had its own convenient teachers' room for scheduled meetings and informal planning. The principal in School 1, one of the lower achieving schools and by far the largest, recognized the need for her teachers to engage in collaborative planning and development; she had instituted several programs which were still in their initial phases at the time of data collection.

The third factor extracted from factor analysis of the items on collegial behavior was entitled "Unprofessional Behaviors." It included making negative remarks about other teachers, insulting them directly, and discussing personal problems. While the factor may be meaningful, the factor scores are suspect for their reliability and validity. The row of response options was inadvertently omitted for item K, and half of the respondents left the item blank, while the other half wrote in the number and circled it. Factor scores for those omitting the item would appear to be far more negative, since low numbered responses indicated greater frequency of the behavior. Instead, ANOVA's were computed separately for the two other items which appeared on the factor, making negative remarks, and discussing personal problems. Neither F ratio was significant.

The one teacher to one classroom model of organization of schools separates teachers from their colleagues and promotes isolation. But like most other workers, teachers are more committed to their work when norms and working conditions promote interpersonal attachments (Buchanan, 1974); isolation from other teachers and administrators reduces commitment (Zielinski & Hoy, 1983). Teachers prize the respect of their colleagues and value opportunities to interact with them (Firestone & Rosenblum, 1988). Not only do these opportunities promote commitment, they can be instrumental in improving teaching; teachers learn from each other, and their teaching skills are improved when they have frequent professional interaction with each other (Rosenholtz, 1985).

Commitment and Affiliation as Reflected in Teacher Interviews

Asked what they liked most about teaching in their schools, teachers spoke first and foremost about their students. However, once they had addressed that subject, the teachers spoke about professionalism, in positive terms if their needs were being met, or in terms of the changes they would like to see take place in their schools if they were unhappy with their situations. Teachers want to be treated like professionals; they want participation in decision making on important issues. They value collegiality fostered through cluster programs or other arrangements that give them time to collaborate on curricular decisions, and to share information about individual students. Teachers who had these opportunities credited them as major sources of job satisfaction; those who were unhappy with their situations named isolation and the lack of opportunities to work with other teachers as things they sorely needed. These assessments are reflected in the following miscellaneous quotes:

> "The cluster system meets weekly with administrators but is teacher led.
>
> "Teacher relationships are very good."
>
> "Even as a first year teacher in the building, you have a voice."
>
> "We have frequent discussions of students; they don't get lost."
>
> "It's not unusual for teachers from this school to give up time on their weekends to help students, or to work on a special project."
>
> "All the teachers here are expected to be good teachers."
>
> "Not everyone gets along well, but all in all, the teachers here treat each other with respect."
>
> "We all work toward the same goal--teaching students the best we can."

How Students View Teacher Affiliation

Collegial behaviors among teachers are noted by students. The models of behavior provided by the teachers' own conduct in school are some of the most important ways in which norms for behavior are communicated to students in the schools. Students look to teachers to see if they are treating others with kindness and respect. Students also want respect for themselves--the knowledge that they are being treated with fairness and decency by adults in school, most notably the teachers, with whom their interaction is most frequent and most direct. Wehlage and Rutter (1986) reported that a substantial group of students in urban high schools believe that they are routinely treated unfairly by teachers. Natriello (1982) observed that where students experience unfair treatment, their commitment wanes.

The students' view of their teachers' affiliation with each other, with the principal, and particularly their care and concern for students were addressed in items from Section 16 of the Student Questionnaire. Students behaviors toward each other were also queried. In these items students were asked to make assessments from a school-wide perspective. Factor analysis of these eleven items yielded three factors whose eigenvalues, percent of variance and item weights are shown in Table 10.5. Entitled "Our School is Better," Factor 1 included items stating that teachers in their school care more and students learn more than those in other schools. Factors 2 and 3 contained three items each on teacher affiliation and student cooperation respectively. Factor scores were created by adding raw scores for the items assigned to each factor.

Four-way analyses of variance were conducted on the factor scores to determine differences among students by school, grade, sex, and race. Results are reported in Table 10.6. The ANOVA using scores on Factor 1 for the dependent variable produced significant differences by school, grade, and race. Students in School 3 were significantly lower in their belief that the education they were getting in their school was better; seventh and eighth graders were significantly more negative in this regard than sixth graders. Black, whites, and "others," held lower esteem for their school than Hispanic, and in turn Asians. However, these findings needed some modification, since two interaction effects were significant. Students in particular racial/ethnic groups were more positive about their evaluation of some schools than others: Asians at School 2, whites at School 4, and Hispanics at Schools 1 and 4 were even more positive about their schools than their same race counterparts at other

TABLE 10.5

Results of Factor Analysis of Student Perceptions of School-Wide Influences on Their School's Climate

Factor Number & Name	Eigen-value	Pct of Var	Cum Pct	Items on the Factor	Weight
1: Our School Is Better	3.35	30.4	30.4	C. Teachers give students extra help with their work	.43
				H. Students here learn a lot more than students from other schools	.64
				I. Students here are expected to do homework 4-5 times a week	.69
				J. Teachers are a lot more about their students than teachers from other schools	.66
				K. Most students feel very close to their teachers	.47
2: Teachers Like Others	1.14	10.4	40.8	E. Teachers seem to like the principal	.82
				F. Teachers seem to like each other	.77
				G. Teachers seem to like the students	.47
3: Students Cooperate	1.07	9.8	50.6	A. There are unfriendly cliques (groups)	-.65
				B. Students help each other	.63
				D. Students try to help each other with school work	.65

TABLE 10.6

Summary of Significant F Ratios from Four-Way Analyses of Variance of Student Factor Scores on Perceptions of School-Wide Influences on School Climate, And Results of Duncan Tests of the Significance of Mean Differences On Significant Main Effects: School, Grade, Sex and Race

Significant Effects	df	F	Duncan Tests of Mean Differences
FACTOR 1: Belief That Their School Is Better			
School	3	4.46**	School 3 < Schools 1, 2, 4
Grade	2	13.01****	Grades 7, 8 < Grade 6
Sex	1	NS	
Race	4	12.27****	Blacks, Whites < Hispanics < Asians
School X Race	6	1.91*	
Sex X Grade	2	3.81*	
FACTOR 2: Teachers Like Each Other, the Principal, and Students			
School	3	5.90***	School 3 < Schools 2, 1, 4
Grade	3	9.20****	Grades 7, 8 < Grade 6
Sex	1	8.10**	Males < Females
Race	4	7.02****	Blacks, Asians < Hispanics
No Interactions			
FACTOR 3: Students Are Cooperative, Friendly Toward Each Other			
School	3	3.29*	School 3 < Schools 1, 4
Grade	2	12.86****	Grades 7, 8 < Grade 6
Sex	1	17.53****	Males < Females
Race	4	6.81****	Whites, Blacks < Hispanics, Asians
No Interactions			

*p < .05
**p < .01
***p < .001
****p < .0001

schools. Males' assessment of the quality of education and care provided by teachers at their schools continued to decline over grade levels, whereas the assessment by females declined in seventh grade and improved in eighth grade.

Scores on Factor 2 were a composite of the students' perception that their teachers seem to like each other, the principal, and the students. Four-way analysis of variance of these scores produced significant results for all main effects but no significant interaction effects. Again students in School 3 had significantly more negative perceptions about their teachers' regard for others than students in the other schools. Students in grade six held significantly more positive views about their teachers' liking others than did students in grades seven and eight. Females were more positive than males, and Hispanics were more positive in their assessment than blacks, "others," and Asians. Interestingly, this was the only occasion in the study when Asians fell on the negative side of a significant finding regarding affective behavior.

Analysis of Factor 3 scores on student cooperation once again differentiated students in School 3 from students in Schools 1 and 4. (The mean for students in School 2 fell in between those for Schools 3 and 1.) As for Factors 1 and 2, students in grade six were more positive in their assessments of students' cooperative, friendly behaviors than students in grades 7 and 8, and again the females were significantly more positive than the males. Also consistent with most other findings from the study, white and black students perceived significantly lower levels of student cooperation in their schools than Hispanic and Asian students.

Administrative Support for Teachers

There are a number of ways in which principals can support teachers and thereby contribute to their performance in the classroom. One of the most important among these to teachers is the principal's exercise of control over the school's public places and consistent enforcement of discipline. Teachers expect principals to provide a sympathetic court of appeals when they have problems controlling students and when they have disputes with parents. Teachers also expect principals to minimize disruptions to their classroom routine (Rosenholtz, 1985). In addition to the principal's fair and consistent use of authority and control, teachers also benefit from more proactive, enabling strategies and from instructional leadership. The former includes the assignment of pleasant workspaces, arrangement of teaching times and class schedules so that teachers can meet with colleagues and so that responsibilities are assigned equitably. Teachers also look to the principal for the provision of necessary materials.

Evidence from Teacher Interviews

Even though questions about principals were not posed directly, the interviews with teachers revealed a great deal about how they related to their principals and how supportive he or she was to their teaching efforts. Teachers like principals who hold clear, high expectations; who practice strict, and consistent enforcement of discipline; who enforce the schedule to promote attention to academics, and limited interruptions to classes The teachers wanted their principals to provide adequate resources and to give them some say in decision making. Principals who drew the highest praise from their teachers appeared to exercise a delicate balance between strong leadership and sharing of power with their teachers, as reflected in the following comments:

> "We get a lot of support. He's always willing to listen to you. If your idea is better, he'll change.
>
> "The school is well run. You may not like all of his decisions, but he is a creative genius, fosters productivity in everyone.

One teacher sought a well disciplined school with firmer control, security, and safety than the one he had just left so that he would have more opportunity to deal with curriculum issues; he liked the style of his new principal very much: "Mr. X is everywhere! There's very little that gets by that man! " Another teacher echoed that praise: "Mr. X has a lot to do with the atmosphere. There's freedom, trust, and respect for the people who work in the building. I don't know how he does it. There's method to his madness....As a specialist, I've worked in several buildings in the systems, so I've seen a few principals and how building are run. Here it's like I died and went to heaven." Another expressed appreciation for competent management this way: "I was at a school where the kids had better home lives but the school was so poorly run, the staff was totally demoralized, I had to get out. It's much better here."

Teachers also said they valued supervision if it was done constructively: "There's real supervision in this school; the first week he was in my class eight times;

he never interrupts, and notices everything, even how you talk to kids in the hall." But despite the careful observation, teachers and other professionals with effective principals felt they had the latitude to try new ideas and to risk making mistakes. One interviewee was a librarian who explained that she had been given complete latitude in scheduling the use of the library; when she asked her principal what to do about something, the reply was "I hired you as a librarian, now be a librarian."

Evidence from Questionnaires

The principal and other administrators are a crucial source of respect for teachers. The support principals provide is critical to teachers' classroom performance and to their retention in the field (Dworkin, 1987). Teachers in the present study echoed that sentiment. Asked to rate 14 aspects of their job with respect to importance (See Appendix A, Section 17), teachers placed administrative support in improving student achievement in third place, after teacher/pupil relationships and job security. Fourth ranked in order of importance was teacher authority over students, an issue on which teachers also expect support from principals. Teacher/administrator relationships was ranked sixth in order of importance, ahead of teacher/teacher relationships which was ranked ninth.

In the teachers' view, the principal's responsibilities should be primarily "to oversee school operations and scheduling," and secondarily, "to lead curriculum and program planning." Providing resources to teachers was ranked a distant third, followed by disciplining students and supervising teachers. Clearly most of the teachers prefer to see the principal act in an enabling, facilitating role, rather than in a supervisory role. And while the provision of resources and student discipline are downplayed, it was apparent from teacher interviews that when teachers cannot meet these needs on their own, they place great emphasis on the principal's response to these needs.

Loyalty to One's School

Teachers who derive satisfaction from helping students learn, and who like and respect their colleagues, are likely to develop commitment to that particular school. One of the most telling statistics in this regard was the percentage of teachers who had been teaching at their school five years or less, when more than 65% of the sample had been teaching 10 years or more. Fully 91% of the teachers at School 3 had been teaching there 5 years or less; 33% of the teachers there were first year teachers. The school had a reputation as a troubled place; in a school consolidation plan enacted just prior to the beginning of the study, it received a number of students from another school said to be the "dumping ground for behavioral problems" before it was closed. At the time of data collection for student and teacher questionnaires, School 3 had its third principal in less than a year. Teachers in junior positions reportedly entered the system in School 3 and then requested reassignment to other schools as they gained in seniority. In contrast, only 31% of the teachers at School 4 had been teaching there five years or less. It was a place which celebrated student achievement and embodied an ethic of caring; it was a place where teachers wanted to stay. Schools 1 and 2 fell between these two extremes; 58% and 64% of their teachers respectively had taught at these schools five years or less.

Conceivably a school's physical environment might have an influence on whether its users look forward to being there. None of the four schools in the sample had an attractive physical facility. Both School 3 and School 4, the most troubled school together with the highest achieving school, were located in decrepit buildings, parts of which were more than 100 years old, and most of which were poorly maintained and in great disrepair. School 1, lowest in academic achievement, with its large student body and strong Hispanic influence, was located in a building whose condition was slightly better. School 2 had the best physical facility of the four, but it too needed maintenance and repairs. What was striking about School 2 in contrast to the other three schools was the sterile quality of its common places; there were no posters, murals, paintings or student's papers announcing who was there, only quiet, dark corridors lined with brown tiles. In contrast, the other three schools, especially School 4, looked alive with brightly colored murals, paintings, maps, flags, and displays created by the students.

As reported on items 26 and 27 of the teacher questionnaire, the school's physical environment was the thing teachers liked least about teaching in their school, and the thing they would most like to change. Numerous comments from the teacher questionnaire and frequent observations corroborate these reports. These schools are in great disrepair, and they should be refurbished or replaced. However, the overwhelming evidence points to teachers and principals and what they do to engage students in learning as the most important factors in the success of schools.

Summary and Discussion

Teachers exert pervasive influence on students' behavior. Their realm of influence includes not only academic achievement, but also social norms and values. The mechanisms by which they do this include setting expectations, providing models of behavior, and giving students feedback on what they do. The central task for schools and for students in particular is to engage students, so that they put forth serious effort and develop a commitment to mastering schoolwork. Social psychological dimensions of this task are not only instrumental to student learning but also important ends in their own right, such as showing respect for others, affiliating with others and sharing commitments.

The social psychological dimension of schools appears to be particularly important for students at risk for school failure or dropout. Rather than viewing these students as ones with a disadvantage or deficit, it may be more constructive to note their higher sensitivity to positive school environments. Students at risk of school failure may be the very ones who stand to gain the most from the social capital which the schools need to provide, since families are no longer well equipped to do so. Such vulnerable students may be even more responsive to positive social and educational environments than students whose homes extend the achievement and value orientation of their schools.

The importance of a safe, orderly environment to a positive school climate has been recognized for some time; the influence of high expectations on student achievement has been known even longer. What is more recent, but perhaps just as important for students at risk, is careful documentation of the importance of a caring environment. An ethic of caring promotes respect, affiliation and commitment among the adults and students in the school. These effects are mutually reinforcing for students and teachers; but if one side is low, it will depress the other. Factors contributing to this cycle of commitment include not only respect and affiliation, but also relevance, administrative support for teachers, fair and consistent treatment of students according to clear rules, and having a sense of control over one's work. Several of these factors need to be orchestrated on a school-wide level by the principal.

Indicators of teacher behaviors as well as the influence of teachers and principals on teachers and students were developed as part of the present study. Results of these measures were corroborated by interview and observation and shown to be related to the academic achievement rankings and prosocial behaviors in the schools. Teachers' commitment to students was attested in teachers' assignment of #1 ranking to the importance of teacher/student relationships to job satisfaction, a finding which was overwhelming endorsed in interviews. Teachers in all four of the sample schools serving predominantly minority youth expressed shared responsibility for student achievement. The primacy of the academic mission of the school was recognized by students in both higher and lower achieving schools.

What differentiated higher and lower achieving schools was an ethic of caring, a sense of cooperation among students, collegiality among teachers, and a mutual commitment between students and teachers. Principals were instrumental in making this possible, by exhibiting a strong sense of leadership in delicate balance with the sharing of power. Teachers felt support from each other and from principals; they had common planning time and a place for meetings. Students in schools whose teachers exhibited collegial behavior and affiliation toward others in the building were more likely to cooperate with each other. In turn, more cooperative rather than competitive teaching patterns, were associated with higher levels of student achievement.

Competition to do better than other students on tests and grades was negatively associated with achievement measures. Of particular note, this factor provided a clear separation between the two higher achieving schools. The school whose achievement was highest overall, and highest in comparisons within regular and special education programs--on every measure of achievement--had no advanced work classes, nor did it have the Asian bilingual program, both of which favored the second school. Moreover, the highest achieving school had a physical facility which was not nearly as pleasant and accommodating as the second-ranked school. Both drew virtually the same size enrollments from very similar, adjacent communities. If anything, the second school could be said to be more advantaged, yet it was significantly outperformed by the first.

An ethic of caring made the difference. It permeated all of the data we collected--from students, teachers, and principals. The difference was not at all obvious at first; the schools felt different; the social interactions were different, but it was not until months after the study was engaged that a clearer picture emerged. When this qualitative picture was corroborated among several members of the research team who had visited the schools several times, the quantitative results of both student and teacher questionnaires only confirmed the results. The findings are significant not only for what they say about factors affecting student achievement, but especially because they are alterable variables amenable to change by helping principals to exercise effective leadership with the sharing of power, and by helping teachers to employ effective teaching practices with an ethic of caring.

CHAPTER 11

WHAT IS IMPORTANT AND SATISFYING TO TEACHERS

The United States is experiencing one of the longest periods in its history of sustained attention to the problem of improving the quality and productivity of public schools. Now in its eighth year of highly visible efforts, the movement has heard calls for reform from presidents, governors, legislators, foundation chiefs, prominent corporate officials, chief state school officers, union leaders, and academics among others. Many solutions have been proposed which outstrip knowledge of their effects. One such example is minimum competency testing for teachers as a means of raising standards for entry and certification in the teaching profession.

In fact, the United States has the best educated teaching force it is likely to have for years to come. The reason is quite simple, as Wise (1990) points out: a lot of teachers had no real options when they made their career decisions, and schools benefited from their limited opportunities. Now, equality of access to occupations means that society can no longer trap smart young black people and smart young women in teaching. According to Feistritzer (1986), the teaching force is now composed mainly of people in middle to late career; their average age is approaching 50, and 75% have been teaching at least 10 years, 50% for 15 years or more. The thousand plus pieces of legislation enacted across the nation, in virtually every state to reform teacher education focus particularly on teacher licensure, for those entering the profession, and some on the supervision of beginning teachers (Darling-Hammond and Berry, 1988).

These efforts will be insufficient for at least two reasons. One is that more senior members of the teaching force will not be affected by changes in licensure and they are still many years from retirement. A second is that valid assessment of teacher competence is a challenge which far outstrips presently available testing and assessment procedures. It is argued here that staff development is crucial to promoting and sustaining teacher competence for both new and veteran teachers, and that knowledge of subject matter and pedagogy are not all that we should be concerned about in the selection and supervision of beginning teachers.

Who Is Attracted to Teaching?

Some blame the decline in school performance on the declining quality of teachers (Weaver, 1986). The solution, as the argument goes, is to attract bright people to the teaching profession. The problem with this analysis is that many bright people are already there, and more bright young people are starting to enter teacher preparation programs, as salaries become more attractive and alternative professional pursuits appear less attractive than first envisioned. Others are returning to teaching.

The teachers from the four urban middle schools which constitute the sample for the present study mirror the national pattern of a highly educated, experienced teacher force. As reported on their questionnaires and confirmed by school records, the teachers are highly educated. Their answers to the question: "What is the highest degree you hold?" can be summarized as follows:

1. Less than a Bachelor's degree (0.0 %)
2. Bachelor's degree (11.2 %)
3. Some graduate work but less than a Master's degree (27.0 %)
4. Master's degree (19.1%)
5. More than a Master's degree but not a Doctorate (42.7 %)

Similarly, the teachers in the sample were highly experienced. In response to the question: "How many years of experience as a teacher have you had? Include this year as one year of experience," they reported:

(a) 1 - 5 years: 15.4%
(b) 6 - 10 years: 19.8%
(c) 11 - 15 years: 15.4%
(d) 16 - 20 years: 27.5%
(e) 21 - 25 years: 11.0%
(f) more than 25 years: 11.0%

Let's Not Repeat Medicine's Mistake

If academic excellence becomes the over-riding concern in teacher education programs and teacher selection and licensure, education may stand to repeat the mistake of medicine in its single-minded pursuit of highly qualified applicants and its rewards for high grades above all else. Derek Bok, President of Harvard University, captured the essence of the problem when he said that schools of medicine were training the compassion right out of their medical students, undoing the very prized quality we want to see in doctors who treat us and our families. Since then Harvard and several other prestigious institutions have revamped their medical programs and have provided variable routes to entry in an effort to maintain quality while minimizing the negative effects of severe competition.

Even with increases in salary scales, bright young people will not be attracted to teaching only for the money; there are too many other opportunities for higher paying work. Individual's value for the other satisfactions which can be derived from teaching need to be considered. The paradigms for research on teacher effectiveness (Medley, 1983) and school effectiveness (Newmann, 1987) which have changed our thinking about how to study teaching and schooling call attention to what actions teachers and others take to promote achievement, rather than what passive characteristics or credentials they possess. But rather than being "passive" traits, the value systems of teachers may be necessary but not sufficient conditions for engaging students and promoting optimal achievement.

This research has already demonstrated that the highest achieving school combined emphasis on academic achievement with an ethic of caring, whereas the school which appeared to be outwardly more advantaged stressed test performance without commensurate levels of cooperation and caring. What may make teachers excel at their craft are not just mastery of subject matter and expertise in curriculum, cognition and pedagogy, but also commitment, caring, and dedication to students. Teachers need to hold important values; schools need to be structured and managed so that positive values are promoted and reflected in what administrators, teachers, and students do in schools.

The former principal of the highest achieving school in the study seemed to have mastered a formula for the right combination of important ingredients in successful teachers and how to keep them productive. He had just left the school to assume a position in the central administration after serving as principal of School 4 for 11 years. The teacher force he left behind included a large percentage who had been recruited by him to their school. In separate interviews, we heard the story of their acceptance interview with that principal like a popular refrain: "You have to love the kids; you have to be a master of your subject matter; and you have to start teaching five minutes before the bell rings."

What Is Important to the Teachers

Teacher interviews began with the question: "What do you like most about teaching in this school?" Almost all respondents, regardless of the school or the interviewer, said "the students," and proceeded to expound on how important and satisfying were their relationships with students, "my kids." That sentiment was corroborated by results from section 17 of the teacher questionnaire. Presented in pairs, fourteen items inquired how important were various issues to job satisfaction, and how satisfied teachers were with that aspect of their jobs. The percentage distributions of results for teachers in all four schools are given in Table 11.1. The importance of teacher/pupil relationships received the highest percentage of teacher responses in the top category (91.2%) and, as shown in Table 11.2, the highest rank overall. Satisfaction reported from teacher/pupil relationships averaged one and a half score points lower on the scale, but still received the highest rank for sources of satisfaction overall.

Job security received the second highest rating in terms of importance to teachers, but it was an issue about which teachers were among the least satisfied. As a result, it ranked high in terms of the discrepancy between importance and satisfaction, as shown in Table 11.2. The timing of data collection may have been partially responsible for the low level of satisfaction reported by teachers. Many of them had just received "pink slips" informing them that their contracts would not be renewed. It was a rite of spring which these teachers dreaded year in and year out, whose negative demoralizing effects were diminished only partially when many of the recipients were rehired the week before school opened, after a summer of uncertainty. Teachers reported resentment over the criteria which were used in deciding termination. By all accounts, it was not merit, or competence, or seniority, but other factors; black, bilingual, and special education teachers were far more likely to be retained. Unfortunately, the issue of job security took on racial and ethnic overtones.

The annual rite of spring for teachers continued. Front page news in *The Boston Globe* announced:

> *The Boston School Committee tonight is expected to act on a recommendation by Superintendent Joseph McDonough that about 370 tenured teachers be laid off to keep the system within its budget.*
>
> *If such layoffs are approved, warning notices will go out to a total of 630 tenured teachers in Boston, because selection of the 370 to be laid off will be determined by whether US Judge W. Arthur Garrity ends court supervision of school desegregation this month, as he has said he plans to do.*
>
> *"They are covering all the bases. If Judge Garrity decides to stay on the case they will have to use racial percentages to govern layoffs. If he withdraws, then seniority will determine who gets laid off," said Edward Doherty, president of the Boston Teachers Union.*
>
> *Layoff notices have already been sent to 400 provisional, or nontenured teachers.(The Boston Globe, May 8, 1990, p. 1).*

Parent/teacher relationships were deemed by teachers to be very important, on a par with administrative support for teachers, teacher authority over students, level of student achievement, teacher/administrator relationships, the curricula in the school, and even slightly more important than teachers' relationships with their colleagues. However, teacher satisfaction with parent/teacher relationships ranked dead last among the 14 items, making it the issue over which there was greatest discrepancy between importance and satisfaction. Many of the teachers who were interviewed, especially those in the lower achieving schools, said that they wished they had more opportunities to involve parents in their children's education, so that teachers and parents could reinforce each others' efforts. Some of the teachers wondered whether their students had any regular supervision at home. A few teachers who lived in the same neighborhoods as their students told us of the times they called the parents and went to their homes when their children were in trouble. It seemed that most teachers were unwilling or unable to do this. They felt the connections should be made through the schools.

One of the four schools, School 1, had the lowest level of academic achievement overall, but a more positive position on several of the social and behavioral indices. School 1 was by far the largest of the four schools and enrolled a significant number of Hispanic bilingual students. Despite these challenges, School 1 was far more successful than the other schools in getting parents to come to the school. Its black female principal insisted that parents come to the school to receive

TABLE 11.1

Percentage Distribution of Teachers' Responses to Items Regarding the Importance And Satisfaction They Assign to Various Aspects of Their Jobs

A. Salary:	Very important	47.8	29.3	19.6	02.2	01.1	Very *Un*important
	Very satisfied	17.4	21.7	33.7	18.5	08.7	Very *un*satisfied
B. Job security	Very important	82.2	10.0	04.5	03.3	00.0	Very *Un*important
	Very satisfied	1 6.9	11.2	21.3	12.4	38.2	Very *un*satisfied
C. Level of student achievement	Very important	80.2	12.1	05.5	00.0	02.2	very *Un*important
	Very satisfied	05.4	13.0	35.9	27.2	18.5	very *un*satisfied
D. Parent/teacher relationships	Very important	79.1	13.2	03.3	01.1	03.3	Very *Un*important
	Very satisfied	10.9	08.7	22.8	23.9	33.7	Very *un*satisfied
E. Teacher/teacher relationships	Very important	58.2	33.0	04.4	02.2	02.2	Very *Un*important
	Very satisfied	08.7	20.7	43.5	12.0	15.2	Very *un*satisfied
F. Teacher/pupil relationships	Very important	91.2	08.8	00.0	00.0	00.0	Very *Un*important
	Very satisfied	20.7	31.5	28.3	08.7	10.9	Very *un*satisfied
G. Teacher/administrator relationships	Very important	75.6	18.9	03.3	00.0	02.2	Very *Un*important
	Very satisfied	17.6	23.1	25.3	14.3	19.8	Very *un*satisfied
H. The curricula in school	Very important	71.7	22.8	04.3	01.1	00.0	Very *Un*important
	Very satisfied	09.9	22.0	38.5	16.5	13.2	Very *un*satisfied
I. Teacher autonomy	Very important	53.9	34.8	09.0	02.2	00.0	Very *Un*important
	Very satisfied	11.4	26.1	35.2	12.5	14.8	Very *un*satisfied
J. Teacher authority over students	Very important	73.6	24.2	02.2	00.0	00.0	Very *Un*important
	Very satisfied	08.9	23.3	31.1	16.7	20.0	Very *un*satisfied
K. Teacher evaluation procedures	Very important	37.8	26.7	25.6	04.4	05.6	Very *Un*important
	Very satisfied	11.1	11.1	41.1	14.4	22.2	Very *un*satisfied
L. Recognition for teacher achievement	Very important	56.0	28.6	12.1	01.1	02.2	Very *Un*important
	Very satisfied	06.7	18.0	25.8	25.8	23.6	Very *un*satisfied
M. Participation in making decisions	Very important	51.6	39.6	07.7	01.1	00.0	Very *Un*important
	Very satisfied	04.4	07.8	41.1	25.6	21.1	Very *un*satisfied
N. Administrative support in improving student achievement	Very important	74.4	23.3	02.2	00.0	00.0	Very *Un*important
	Very satisfied	12.4	22.5	33.7	15.7	15.7	Very *un*satisfied

Table 11.2

Rank Order, Means and Standard Deviations of Ratings Given by Teachers on the Importance of, and Satisfaction with, Various Aspects of Their Jobs And the Discrepancy Between Importance and Satisfaction

Aspects of Teacher'sJob Rated High (1) to Low (5)	Importance (I)			Satisfaction (S)			Discrepancy (I - S)		
	Rank	$\bar{X}$	s	Rank	$\bar{X}$	s	Rank	$\bar{X}$	s
A. Salary	# 13	1.79	.91	# 2	2.79	1.19	#14	-1.00	1.50
B. Job Security	# 2	1.27	.72	#12	3.44	1.51	# 2	-2.16	1.70
C. Level of student achievement	# 5	1.30	.78	#10	3.40	1.10	# 3	-2.10*	.47
D. Parent/teacher relationships	# 8	1.35	.88	#14	3.61	1.33	# 1	-2.26	1.54
E. Teacher/teacher relationships	# 9	1.55	.87	# 7	3.04*	1.14	#11	-1.49**	1.36
F. Teacher/pupil relationships	# 1	1.08	.31	# 1	2.58	1.22	#10	-1.50	1.22
G. Teacher/administrator relationships	# 6	1.33	.76	# 4	2.96	1.37	# 9	-1.63	1.39
H. The curricula in school	# 7	1.35	.62	# 6	3.01**	1.15	# 8	-1.70**	1.24
I. Teacher autonomy	# 11	1.60	.75	# 3	2.93	1.20	#12	-1.36	1.44
J. Teacher authority over students	# 4	1.29	.50	# 8	3.16	1.24	# 5	-1.87	1.33
K. Teacher evaluation procedures	#14	2.13**	1.14	# 9	3.26	1.24	#13	-1.12*	1.72
L Recognition for teacher achievement	#12	1.65	.90	#11	3.42	1.22	# 6	-1.81	1.49
M. Participation in making decisions	#10	1.58	.68	#13	3.51	1.05	# 4	-1.92	1.38
N. Administrative support in improving student achievement	# 3	1.28	.50	# 5	3.00	1.23	# 7	-1.72	1.29

Note.– Teachers responded to each aspect in pairs according to the following format:

Very important	1	2	3	4	5	Very *Un*important
Very satisfied	1	2	3	4	5	Very *un*satisfied

*Significant differences exist among school means at $p < .05$
**Significant differences exist among school means at $p < .01$

their children's report cards; in addition, she and her staff also arranged pot luck suppers for adults in the evenings, and family day events on a Spring Saturday.

All of the issues listed in section 17 on the teacher questionnaire were ones which teachers rated very highly for their importance to job satisfaction. On a scale ranging from 1 to 5, from very important to very unimportant, the means for all but one item fell between 1 and 2, the top two points on the scale. The exception was for teacher evaluation procedures on which there was a significant difference among schools at $p < .01$. As noted in Table 11.3, School 4 teachers on average rated that aspect significantly less important (2.85) than Schools 1, 2, and 3, whose means were 1.78, 2.07 and 1.78 respectively. Interviews with School 4 teachers and administrators conveyed the sense that teachers there knew they were good; if they weren't they wouldn't be there; the principal would somehow have managed to get rid of them. Such a mindset would explain why teacher evaluation procedures were significantly less important to those teachers.

How Satisfied Are Teachers with Aspects of Their Jobs

If "3", the midpoint of the scale, represents neutrality, then teachers on average can be said to be reasonably satisfied about most aspects of their jobs. As revealed in Table 11.2, almost all of the means for satisfaction scores fell within a half a score point (.5) of the midpoint on the scale. Again teachers were least satisfied with parent/teacher relationships, but dissatisfaction with participation in decision making ranked second from the bottom, with the smallest standard deviation. Teachers were uniformly less than satisfied with their level of participation in decision making.

Significant differences among school means occurred for teacher/teacher relationships. Teachers in School 4 expressed significantly more satisfaction (a lower numerical mean) than teachers in the lower achieving schools, Schools 1 and 3. This came as no surprise to the investigators who had attended numerous cluster and faculty meetings at the schools and had many occasions to observe the teachers relating to one another. Another significant difference occurred for teachers' satisfaction with their school's curricula; teachers in School 3 were significantly less satisfied than teachers in Schools 4, 1, and 2. These significant findings are summarized in Table 11.3.

TABLE 11.3

Summary of Significant F Ratios from One-Way Analyses of Variance of Teacher Ratings of Importance of, and Satisfaction with, Various Aspects of Their Jobs And Duncan Tests of the Significance of Mean Differences Among Schools

Aspects of Teacher'sJob Rated High (1) to Low (5)	Importance (I)		Satisfaction (S)		Discrepancy (I - S)	
	F	$\bar{X}$ Differences	F	$\bar{X}$ Differences	F	$\bar{X}$ Differences
C. Level of student achievement	NS		NS		2.86*	Sch 2,3 <4
E. Teacher/teacher relationships	NS		3.32*	Sch 4 <1,3	4.26**	Sch 3,1<4
H. The curricula in school	NS		4.37**	Sch 4,1,2<3	5.05**	Sch 3<1,2,4
K. Teacher evaluation procedures	5.77**	Sch 1,3,2<4	NS		3.11*	Sch 3,1<4

*$p < .05$
**$p < .01$

Note.--Lower means indicate higher levels of importance and satisfaction, because aspects were rated high (1) to low (5). Also, lower means indicate higher levels of discrepancy, because importance minus satisfaction produced negative results.

Discrepancy scores were computed by subtracting satisfaction scores from importance scores for each teacher in order to provide a gauge on the saliency of the issues as targets for change. All of the means for discrepancy scores were negative, because the means for importance of issues were closer to "1", the high point of the scale, where as means for satisfaction with those issues were closer to "3", the midpoint of the scale. In all cases the, teachers expressed greater importance for, than satisfaction with, the various aspects of their jobs. The greatest discrepancy was for parent/teacher relationships, as noted previously, but the second and third greatest were for job security and level of student achievement. Participation in decision making was fourth. School principals may well be advised to act on the fourth by involving teachers in planning strategies and seeking their advice for improving levels of teacher satisfaction with the top three discrepant issues: parent/teacher relationships, job security, and student achievement. These will be discussed further in the section on teacher empowerment and staff development.

Significant differences among schools occurred for four discrepancy scores, three on issues which had significant differences among schools in importance or satisfaction scores. There was significantly less discrepancy ($p < .05$) between the importance and satisfaction in levels of student achievement reported by teachers in School 4 than teachers in Schools 2 and 3. Teachers in School 4 reported significantly less discrepancy between importance and satisfaction on the issue of teacher/teacher relationships than teachers in Schools 3 and 1. This difference was significant at $p < .01$. On the issue of curricula in the school, teachers in Schools 4, 2, and 1 expressed significantly less discrepancy between importance and satisfaction with the issue than teachers in School 3. Finally, there was less discrepancy between importance and satisfaction on the issue of teacher evaluation procedures for teachers in School 4 versus Schools 1 and 3. These school by school differences may be helpful to principals to establish normative comparisons on the salience of various issues for their teachers versus teachers in other schools.

Some Notes on the Use of Discrepancy Scores

One might question whether the use of discrepancy scores is analogous to the use of gain scores, with the attending problem of inflated differences due to the unreliability of measurement. However, unlike pre-test and post-test achievement measures, the importance and satisfaction which teachers assign to various aspects of their job were not expected to be correlated. Several teachers reporting on the clarity of the questions noted how helpful it was to have the dimensions separated. Having more unidimensional issues facilitated a "cleaner" response. Importance and satisfaction were seen to require separate judgements. Correlation coefficients between the importance and satisfaction scores for each aspect of teachers' jobs confirmed this observation. Only three of the 14 coefficients exceeded .15; these were .20 for level of student achievement, .26 for teacher/administrator relationships, and .22 for participation in making decisions. Most pairs correlated less than .10, approaching 0.0% shared variance.

Nonetheless, since the question of unreliability was important to ask, residuals were calcualted and the analyses of variance by school were run using residual scores, as they had been for discrepancy scores. Significant differences among schools at $p < .001$ were found for residual scores between teachers' importance and satisfaction with teacher evaluation procedures. Just as the ANOVA for discrepancy scores had found, the difference clearly separated teachers in School 4 from those in the other three schools. Teachers in School 4 were far more satisfied relative to the importance they placed on teacher evaluation procedures than were the teachers in Schools 1, 2, and 3. Analyses of residual scores did not produce significant differences for the other three variables which yielded significant differences when discrepancy scores were used (level of student achievement, teacher/teacher relationships, and the curricula in school), although the trends were in the same direction.

A final note on the use of discrepancy scores is that their ease of computation and conceptual understanding may facilitate the translation of research into practice. The discrepancy scores do appear to be useful to school personnel for arriving at a consensus on what priorities they target for reform. Arguably, interest in the utility of research should temper concern for methodological purity.

Summary and Discussion

Piecemeal prescriptions for school reform are not likely to succeed because they fail to address the problems in their complexity. While it is important to make the profession attractive to bright, talented, competent people, focusing efforts only on teacher preparation and licensure will be insufficient. The United States has the best educated teaching force it is likely to have for years to come, simply because a lot of teachers presently in the force had no real options when they made their career decisions. Now, equality of access to occupations means that society can no longer trap smart young blacks and women in teaching. The senior members of the teaching force will not be affected by changes in licensure, and they are still many years from retirement. Staff development will be crucial to promoting and sustaining teacher competence for both new and veteran teachers, but up-to-date knowledge of subject matter and pedagogy should not be the only concerns.

If academic excellence becomes the over-riding concern in teacher education, selection, and licensure, education may stand to repeat the mistake of medicine in its single-minded pursuit of highly qualified applicants who test well and get good grades. By highly respected accounts, schools of medicine had managed to select and train the compassion right out of its medical students, undoing the very quality we want to see in doctors who treat ourselves and our families. Since then, medical education has developed many new programs to thwart the negative effects of severe competition for what can be more readily quantified--test scores and grades.

Paradigms for research which have changed our thinking about how to study effective teaching and schooling call attention to what actions teachers and others take to engage students and promote achievement, rather than what passive characteristics or credentials the teachers possess. But rather than being "passive traits," the value systems of teachers may be crucial for the central tasks of schools, although values alone are not sufficient. This hypothesis would be consistent with a major finding from the present study: what differentiates the performance of the highest achieving school from one which outwardly had more advantages was an ethic of caring. Both had high emphasis on achievement, but the more successful school was seen to be more collegial and cooperative by its teachers and by its students who also noted higher rates of prosocial behaviors in their midst.

Asked what they liked most about teaching in their schools, teachers named first and foremost their students. This finding was corroborated by results from the teacher questionnaire. One section contained 14 issues, presented in pairs, which inquired how important were various aspects of their job to job satisfaction, and how satisfied teachers were on these issues. Teachers felt that teacher/pupil relationships were most important, and reportedly they were more satisfied with this aspect than any other. Job security was the second most important concern, but among the least satisfied. Layoff notices have become a rite of spring which has taken on racial and ethnic overtones, since minority quotas continue to displace seniority as the basis for retention. Teacher performance is not considered in the dismissal process.

Teacher ratings of importance averaged toward the high end of the scale, between the highest and second highest score points for all but one of the 14 aspects of their jobs which were included on the questionnaire. The exception was the issue of teacher evaluation procedures, which teachers in School 4 rated significantly less important than teachers in the other three schools. Interviews with teachers and administrators in School 4 suggested a mindset among those teachers that they knew they were competent; if they weren't they wouldn't be there. The principal would somehow have managed to get rid of them.

Average ratings for teacher satisfaction with various aspects of their job were consistently lower than they were for importance of those issues, but if the midpoint of the scale represents neutrality, then teachers on average reportedly were reasonably satisfied about most aspects of their jobs. Significant differences among teachers in different schools were found for two aspects, teacher/teacher relationships and the school's curricula. On collegial relationships, teachers in School 4 reported the more positive position than teachers in Schools 1 and 3; on the school's curricula, the teachers in School 3 were significantly less satisfied than teachers in the other three schools.

Discrepancy scores were computed by subtracting satisfaction scores from importance scores for each teacher in order to provide a gauge on the saliency of the issues as targets for change. The discrepancy between job security and job satisfaction was second largest behind parent/teacher relationships. The discrepancy between the importance and satisfaction regarding the issue of salary ranked last out of fourteen issues. Simply stated, the issue of salary was not an issue for these teachers in comparison to other, more pressing needs. Teachers reflected third and fourth highest levels of concern over the level of student achievement and their own participation in decision making. School principals may well be advised to act on the fourth-ranked concern by involving teachers in planning strategies for responding to the top three issues: parent/teacher relationships, job security, and student achievement.

CHAPTER 12

EMPOWERING TEACHERS WITHOUT LOSING SIGHT OF STUDENTS

After sustained attention to the need for improving the quality and productivity of our nations schools, educational reform is at a crossroads. Either legislated prescriptions will continue to be imposed in the name of reform, or real reform might take hold through the empowerment of teachers. Wise (1979) warned about the dangers of legislation, centralization, and regulation to the education enterprise more than a decade ago. It would be a "world characterized by standardized testing, not educational standards; by teacher-proof curricula, not curricular reform; by standardized teaching, not professional discretion; and by management-by-numbers, not instructional leadership." Where are we now? The picture is complicated. Revisiting legislated learning, Wise (1988) cites two conflicting trends which have been evident in the past decade. One is the continuing effort by the states to consolidate control; the other is the return to the classical conservative view that educational decisions are best made closest to the people served.

A Crossroads for Both Educational Reform and the Teaching Profession

Not only is educational reform at a crossroads, Wise's colleague, Darling-Hammond (1988) argues that the teaching profession in America is at a crossroads. One path reflects the assembly line point of view in which teachers must administer fixed procedures (schedules, curricula, placement and exit tests), using the tools that are given them (textbooks and limited other material), while administrators enforce rules, inspect performance, and maximize efficiency. The alternative path starts from the assumption that students are not standardized, and teaching is not routine. It follows that teachers must exercise judgments repeatedly, based on knowledge of learning theory and pedagogy, curriculum, and assessment, as well as subject matter.

The empowerment of teachers as the most promising strategy for reform goes hand-in-hand with the transformation of teaching into a true profession. But, as it was argued in the previous chapter, changes in teacher preparation, while they are part of the solution, will not be sufficient by themselves. Participatory management and staff development must take place alongside structural changes in the way schools operate in order to promote collaboration among teachers and provide opportunities for continual reform from within. These strategies will be important not only to attract talented, dedicated people but to sustain them in a professional work environment. What is coming into focus is that legislated standards and piecemeal reforms won't work, and that reforms which lose sight of students will also miss the mark.

Learning from the Past But Looking to the Future

The Carnegie Task Force on Teaching as a Profession cautioned that we are doing better on the old goals at the expense of making progress on what counts most. "Because we have defined the problem of schools in terms of decline from earlier standards, we have unwittingly chosen to face backwards when it is essential that we face forward" (1986, p. 20). Building on this metaphor, Michaels urges that we "take our eyes off the rearview mirror of first wave reform and look carefully at the 21st century." The first wave set out to raise standards, increase accountability, and raise rigor. The second wave is more enlightened, marked by a different and exciting agenda: participatory school-based management; cooperative, collegial school environments for both students and staff; flexible use of time; high expectations alongside an ethic of caring; curricula that focus on students' understanding, not only of what, but also their understanding of why and how; as well as an emphasis on higher-order thinking and complex problem solving for all students.

Direction from Research

Cuban (1990) offers a penetrating analysis of why reforms recur--again, and again, and again--using pendulum swings and cycles as images to illustrate the periodic return of numerous reforms. Political processes, conflicting values, economic conditions, and reigning ideologies fuel innovations which tinker with the system but leave untouched the regularities of schooling, failing to change in a fundamental way how schools operate. "...few reforms aimed at the classroom make it past the door permanently" (1990, p.11).

Slavin discusses the dynamics of the educational pendulum using the Madeline Hunter phenomenon as a case in point. "Nineteen years after the Hunter phenomenon began in earnest, a high-quality, large scale evaluation of ITIP has appeared" (1989, p. 754). (ITIP refers to Hunter's popular educational training model called Instructional Theory into Practice.) Results were mixed at best. In Slavin's view, two major shifts will have to take place if we are to wean ourselves from faddism and increase the chances for lasting change:

> *First, school districts will have to demand high-quality evaluations of programs before they adopt them....Second, school districts will have to focus their staff development efforts not on one-shot workshops, but on extended training and followup for a smaller number of programs of proven effectiveness. The emphasis in staff development must shift from scattershot presentations on what's new to systematic implementation of what works (Slavin, 1989, p 757).*

Not only are faddism, political pressures, and reigning ideologies getting in the way of sustained reform, rationalized reforms can also be misguided. Cuban (1990, p. 5) decries the common practice of "rational explanation bashing" used as a preface by those who think their own favored explanation will convince the audience. The rational model of organizational change is pervasive, particularly among policymakers and administrators. The problem is that what stands to reason doesn't always work. State-mandated competency testing is a case in point. Rather than raising standards, it has depressed them to what is measurable.

Effective solutions are sometimes counterintuitive. In addition, for problems as complex and long entrenched as the ills of urban public schooling, solutions will have to be comprehensive and multifaceted, rooted in research evidence synthesized from many sources. Scheerens (1989) has attempted such an integrative model; it is systems oriented, embodies a multilevel framework, and contains substantive findings from different types of educational effectiveness research.

The second wave of reform calls for restructuring schools in pervasive ways: changing the use of time and space; making schedules more flexible; altering the allocation of resources; rethinking the roles professional personnel assume, introducing more para-professionals and other professionals, such as social workers, health experts, and counselors. But in all of this, the role of the teacher is central, because teachers are the basis of schooling (Maeroff, 1989) and the engagement of student learning is their central task (Newmann, 1987). Participatory decision making through school based management is a strategy for reform which can enable structural changes to reach the student.

Participatory Decision Making

If bureaucratic control over resources is moved from a district to a school level, where a single individual--the principal--makes the decisions bureaucratically, not much will change in the classroom. If schools restructure themselves by changing fixed rows of desks into clusters and call it cooperative learning, if they alter the length of class periods a bit and call it flexible scheduling, or they rotate teachers through lectures and call it team teaching, nothing will change ultimately. More than tinkering is needed; neither is the locus of decision making the key issue. Principals *and teachers* need to *participate in decisions* to affect what teachers do in the classroom.

This conception of school-based management requires a structure for decision making in which teachers identify problems, propose tentative solutions, and identify the resources needed to try them out. Team leaders, cluster coordinators, department heads, and assistant principals might serve as the advocates and negotiators for their teams of teachers. Principals must make the decisions on the acquisition and allocation of resources, while serving as the school's advocate to upper echelons of the system.

Teachers as Professionals

This participatory role for teachers in decision making at the site level requires that administrators recognize teachers as professionals who are trained to cope with uncertainty (Backarach & Conley, 1986) and who make scores of nontrivial decisions in the space of a single lesson (Berliner, 1984). Administrators must view teachers not as assembly line workers following fixed procedures, announcers following a script, or paper pushers keeping track, but as decision makers and problem solvers--true professionals who continuously refine and adapt their pedagogical knowledge to new situations and changing needs of students.

There has been considerable debate over which kinds of decisions teachers want to influence. Some researchers have found it striking how much teachers lack interest in major policy decisions, like budget, curriculum, and new programs

(Firestone & Rosenblum, 1988). Teachers may be willing to forego participation in major policy decisions because they take time from teaching (Corbett, Dawson & Firestone, 1984). Research indicates that teachers want the greatest influence over operational classroom decisions including what to teach, how to teach and what textbooks to use(Mohrman, Cooke, & Mohrman, 1978; Backarach, Bauer, & Conley, 1986; Shedd, 1988). It would seem that day-to-day decisions rather than strategic choices are most important, but salience may be a factor; teachers are usually more concerned about budgets when they do not get the supplies they need.

Reportedly the decisions in which teachers feel most deprived are those which affect the boundary between the classroom and the school, which constrain teachers' decision making. These issues include student placement and promotion, rules of discipline and their enforcement, teachers' course assignments and schedules (Conley, 1988). Indeed, some of the greatest constraints on classroom practice may occur at the district level (Shedd, 1988). The critical factor may be the individual's sense of control over one's own work. Individuals demonstrate greater commitment to jobs that give them autonomy and discretion, in part because they have a sense of making a greater contribution to the organization (Steers, 1977).

The debate over which decisions teachers want to make and ought to make may stem from different points of view on what constitutes their professional identity and expertise. Secondary school teachers may view their expertise more in terms of subject matter and may want to participate in curricular decisions at the district level; in contrast, elementary school teachers may view their expertise more in terms of their clientele and want to devote more time to intraorganizational issues which may address students' needs. Whatever the decisions which they are empowered to make, to do so effectively teachers need good information, not only from their own professional insights and considerable experience in their schools, but from research, including participatory research.

Teachers as Researchers

Good (1989) argues for the linking of research on teacher effectiveness to the research on effective schools, and especially for the involvement of teachers as researchers in this integration. Practitioners have not had a voice in setting the research agenda for education, which may explain in part why so little research gets translated into practice and used in the classroom. The American Educational Research Association called attention to this problem when it established collaboration between researchers and practitioners as the theme for its 1987 Annual Meeting. The situation is changing, as Lieberman notes (1988), especially as teachers are being asked about their new roles and relationships in school reforms, and what organizational changes appear necessary to complement these changes.

Cochran-Smith and Lytle say that little attention has been given by academic researchers to the roles teachers might play in generating a knowledge base about teaching. "What is missing...are the voices of the teachers themselves, the questions they ask, ...and the interpretive frames teachers use to understand and improve their own classroom practices" (1990, p. 2). From their perspective as university-based teacher educators and researchers, the authors charge that both of the paradigms which have dominated research on teaching over the last two decades-- especially process-product research, but also qualitative, interpretative studies--have constrained and, at times, even made invisible, teachers' roles in the generation of knowledge about teaching and learning in the classroom.

The experience of the present study has been different. The research was collaborative from the start, with practitioners, especially teachers, contributing to the creation of instruments and critiquing successive drafts. On the occasions when teachers were presented with summaries of questionnaire data from their own schools with district wide summaries for reference, the teachers engaged in animated, task oriented discussion and critique of their own schools. Posturing and argument over the present status of issues, as observed in so many previous discussions, seemed to give way to an energized exchange of ideas on what they might change, and what positive results they should sustain as a reflection of good practice.

Unfortunately, we could not continue this level of collaboration, because new sources of support could not be obtained to pursue the next critical step--translating research into practice. Despite the substantial gains in the knowledge about what constitutes an effective school, much less is known about how to use this information for school improvement. A fuller investigation is needed of the processes by which schools increase, decrease, or maintain effectiveness. Efforts have been mounted by a number of school districts to implement projects based on models of effective schools, but information is lacking on the procedures followed, the obstacles encountered, and the results, both positive and negative, intended and unintended. Thus, the literature is increasingly clear about what effective schools are like, but not at all clear on how to get there. Several proposals to conduct research on the translation process had been submitted to different agencies and foundations, unsuccessfully. What follows here are the results of the instruments which teachers helped to create, and how practitioners might use these results to bring about school reform.

Indicators to Guide the Process of Reform

The point of departure for the present study has been that school effectiveness has been measured too narrowly, by standardized tests of basic skills for the most part. It is important to assess other outcomes, such as performance on tasks of complex problem solving, creative endeavors, and prosocial behaviors, if we want schools to strive for more. It is also important that educators examine carefully the inputs and the processes of schooling, in order to make informed decisions about which reforms to undertake and how to proceed. The present study considered demographic characteristics of students and teachers, what values students hold, and what is important and satisfying to teachers might be considered indicators of inputs. We also developed process indicators which might be used to guide restructuring, help participants establish priorities, and identify strategies for change.

Teachers' Areas of Influence

As noted earlier in this chapter, research has indicated that teachers want the greatest influence over operational classroom decisions including what to teach, how to teach, and what textbooks to use. But the decisions over which teachers feel most deprived are those which affect the boundary between the classroom and the school, which constrain their decision making, including decisions on student placement and promotion, teaching schedules, and course assignments. The items in Section 14 of the Teacher Questionnaire were developed to assess teachers' perceptions of how much say they have in 25 areas of influence. Their responses are summarized as percentage distributions in Table 12.1. Means, overall rank order, and school differences in means for each of the areas are summarized in Table 12.2.

TABLE 12.1

Percentage Distribution of Responses to Items on Teacher's Areas of Influence

How much say do you have in determining the following issues?	Does not apply	A lot		Moderate say		None
A. Your teaching schedule	05.4	08.7	04.3	12.0	10.9	58.7
B. Your room assignment	08.7	02.2	04.3	12.0	06.5	66.3
C. Your cluster or team assignment	12.4	10.1	02.2	12.4	06.7	56.2
D. Your cluster's (team's) leader	11.2	09.0	04.5	06.7	06.7	61.8
E. What courses you teach	10.0	16.7	08.9	14.4	06.7	43.3
F. Which ability levels you teach	13.3	05.6	06.7	12.2	10.0	52.2
G. What content you teach	10.2	31.8	14.8	14.8	04.5	23.9
H. What instructional objectives are set	03.4	37.1	16.9	18.0	06.7	18.0
I. What teaching methods you use	04.4	73.6	14.3	04.4	01.1	02.2
J. What textbooks you use	05.6	20.0	07.8	20.0	17.8	28.9
K. What other materials you use	02.2	56.2	18.0	11.2	05.6	06.7
L. What standardized tests are given	12.4	04.5	0.00	06.7	04.5	71.9
M. What informal tests are given	04.6	60.9	17.2	03.4	02.3	11.5
N. What student grades are assigned	03.4	55.1	13.5	07.9	04.5	15.7
O. Whether students are promoted	02.2	13.2	24.2	25.3	12.1	23.1
P. How students are placed	03.3	11.0	15.4	29.7	13.2	27.5
Q. How teachers are evaluated	05.6	02.2	01.1	00.0	11.2	79.8
R. Who evaluates you	03.3	02.2	01.1	00.0	07.7	85.7
S. When your classes are observed	06.7	02.2	04.4	23.3	15.6	47.8
T. What staff development takes place	05.7	04.6	05.7	17.2	21.8	44.8
U. Which teachers serve on committees	06.7	04.5	07.9	33.7	15.7	31.5
V. Which teachers attend conferences	05.6	01.1	02.2	21.3	09.0	60.7
W. How inservice days are used	00.0	02.2	05.5	15.4	18.7	58.2
X. How professional days are used	01.1	04.4	05.5	13.2	09.9	65.9
Y. How school budgets are spent	02.2	01.1	01.1	06.6	05.5	83.5

Table 12.2
Rank Order, Means and Standard Deviations and Summary of ANOVA Results by School For Teachers' Perceptions of Their Influence on Various Issues

25 Issues Rated Hi (1) to Low (5) on Degree of Teacher Influence	% No Opinion	Summary for All Four Schools Rank	X	s	School Differences
A. Your teaching schedule	05.4	#15	4.13	1.33	
B. Your room assignment	08.7	#21	4.43	1.04	
C. Your cluster or team assignment	12.4	#14	4.10	1.39	
D. Your cluster's (team's) leader	11.2	#17	4.23*	1.37	1,3<4,2
E. What courses you teach	10.0	#10	3.57	1.60	
F. Which ability levels you teach	13.3	#15	4.12	1.28	
G. What content you teach	10.2	# 6	2.71	1.63	
H. What instructional objectives are set	03.4	# 5	2.50	1.52	
I. What teaching methods you use	04.4	# 1	1.37	.82	
J. What textbooks you use	05.6	# 8	3.29	1.51	
K. What other materials you use	02.2	# 3	1.86	1.24	
L. What standardized tests are given	12.4	#22	4.59	1.01	
M. What informal tests are given	04.6	# 2	1.81	1.36	
N. What student grades are assigned	03.4	# 4	2.09	1.52	
O. Whether students are promoted	02.2	# 7	3.08	1.37	
P. How students are placed	03.3	# 9	3.32*	1.31	1<4,3,2
Q. How teachers are evaluated	05.6	#24	4.75	.74	
R. Who evaluates you	03.3	#25	4.80	.71	
S. When your classes are observed	06.7	#14	4.10**	1.08	4,1<2
T. What staff development takes place	05.7	#12	4.02	1.17	
U. Which teachers serve on committees	06.7	#11	3.66*	1.17	4<1,3
V. Which teachers attend conferences	05.6	#20	4.33	.99	
W. How inservice days are used	00.0	#18	4.25	1.05	
X. How professional days are used	01.1	#19	4.29	1.16	
Y. How school budgets are spent	02.2	#23	4.73*	.73	1<3

*Signifies significant differences among school means at $p < .05$

**Signifies significant differences among school means at $p < .01$

The distributions of percentages of teachers choosing each option to each item show striking skewness; either teachers feel they have a lot of say over a given issue or almost none. Very few distributions reflect a middle range of influence. This observation is corroborated by the means reported in Table 12.2. Not surprisingly, teachers say they have greatest control over their own teaching methods; the second and third highest areas of influence have means which cluster about one-half of a scale value away indicating somewhat lesser influence over what informal tests are given, what supplementary materials they use, followed by the fourth ranked mean for what student grades are assigned. Means ranging from 2.5 to 3.1 indicating a moderate level of influence are reported for the items on what instructional objectives are set, what content they teach, and whether students are promoted, which ranked fifth, sixth, and seventh respectively in degree of teacher perception of influence.

More than half of the areas (14 out of 25) received mean ratings by teachers which were in excess of 4.0 on a five point scale, where a "5" meant no influence, indicating the teachers feel they have very little if any say about many areas related to their work. What is especially striking is that teachers report having even less influence over how they are evaluated and who evaluates them than they do over budgets and what standardized tests are given in the system, and, perception not withstanding, it is affirmed that in fact teachers have no say on budgets or standardized tests.

Factor analyses were used to determine if a smaller number of underlying clusters could account for these 25 items. Since the number of teacher respondents was only 92, the items were sorted into two sets for separate factor analyses. The sorting was done by three referees who assigned the items into two groups by content: those regarding professional issues, and those which dealt with pupil and curricular issues. Few disagreement arose, and these were resolved by consensus. The results for each analyses are given in Tables 12.3 and 12.4.

Factor analysis of teachers' perceptions of their influence regarding professional issues yielded three significant factors; together they accounted for 69.2% of the variance. As reported in Table 12.3, the factors separated these items according to the locus of decision-making: the items on Factor 1 dealt with decisions made at the school level; the items on Factor 2 included issues which were addressed

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TABLE 12.3

Results of Factor Analysis of 13 Items on Teachers' Influence in Decisions Regarding Professional Issues

Factor Number & Name	Item	Weight	Eigen-value	Pct of Var	Cum Pct
1: School Level Decisions			5.87	45.1	45.1
	Q. Teacher evaluation	.80			
	R. Who evaluates	.77			
	S. When observed	.66			
	T. What staff development	.76			
	U. Who on committees	.79			
	V. Who to conferences	.78			
2: Classroom/Cluster Level Decisions			1.67	12.8	58.0
	A. Teaching schedule	.78			
	B. Room assignment	.74			
	C. Cluster assignment	.85			
	D. Team leader	.85			
3: System Level Decisions			1.46	11.2	69.2
	W. Inservice days	.89			
	X. Professional days	.76			
	Y. Budgets	.60			

TABLE 12.4

Results of Factor Analysis of 12 Items on Teachers' Influence in Decisions Regarding Pupil and Curricular Issues

Factor Number & Name	Item	Weight	Eigen-value	Pct of Var	Cum Pct
1: System-wide Curriculum			3.50	29.2	29.2
	H. Instructional objectives	.74			
	I. Teaching methods	.50			
	J. Textbooks	.78			
	L. Standardized tests	.71			
2: School Curriculum			1.73	14.4	43.6
	E. Courses you teach	.77			
	F. Ability levels you teach	.85			
	G. Content you teach	.84			
3: Student Placements			1.40	11.7	55.2
	N. Student grades	.46			
	O. Student promotions	.84			
	P. Student placements	.77			
4: Classroom Level Issues			1.09	9.1	64.3
	K. Other materials used	.56			
	M. Informal tests	.82			

at the classroom or cluster level; and the items on Factor 3 were decisions made at the system level. The separations were very "clean," with item weights ranging from .60 to as high as .89, only a few in the .30-.35 range, and the vast majority much lower. One-way analyses of variance by school conducted for each of the three factor scores produced no significant results.

Factor analysis of the items asking teachers about their influence in decisions on student and curricular issues produced four significant factors accounting for 64.3% of the variance. As reported in Table 12.4, items on Factors 1 through 4 dealt respectively with system-wide curricular issues, the school's curriculum, student promotion and placement, and classroom level issues. However, Factor 1 joined items on instructional objectives and teaching methods, which one might expect the teacher to control, with items on the selection of textbooks and choice of standardized tests which in the Boston Public School are unequivocally decisions made at the central level. What would explain the cluster, which is based on empirical correlation, is that teachers feel they must teach to the test, and specifically the Metropolitan Reading Test and the Harcourt Brace Janovich Unit Tests from their basal reading series. It would appear from the factor analyses, the only decisions which teachers make independently relate to the supplementary materials they use in teaching and the informal tests they give. Once again, ANOVA's of factor scores produced no significant differences among the four schools.

Factors Affecting the School's Curriculum and Teachers' Objectives

In light of the research indicating that teachers want to make those decisions that have direct influence on their classroom teaching, it was decided to create separate sets of items to check teachers' perceptions of influences on curriculum at the school level which border on classroom practice, as well as factors determining what objective teachers set for their own students. The former were assessed in Section 16, Items A-G of the Teacher Questionnaire; the latter in Section 20, Items A-G. Table 12.5 contains the percentage distributions of teachers' responses to items regarding their perceptions of influences on the school's curriculum, while Table 12.6 contains the results of factor analyses of those items. Tables 12.7 and 12.8 contain the corresponding results for items on teachers' perceptions of factors which determine their own teaching objectives.

TABLE 12.5

Percentage Distribution of Teachers' Responses to Items Regarding Their Perceptions of Influence on the School's Curriculum

Degree of influence each over decisions about the school's curriculum	a lot		some		almost none
A. Individual teachers	02.2	10.1	28.1	21.3	38.2
B. Groups or clusters of teachers	03.3	13.3	36.7	20.0	26.7
C. Principal	33.0	28.4	13.6	12.5	12.5
D. Tradition	22.9	22.9	27.7	10.8	15.7
E. District level administrators	34.9	21.7	15.7	08.4	19.3
F. Central office administrators	45.2	14.3	14.3	06.0	20.2
G. School committee	34.9	20.5	15.7	04.8	24.1

TABLE 12.6

Results of Factor Analysis of Seven Items Regarding Teachers' Perceptions Of Factors or Groups Which Influence the School's Curriculum

Factor Number & Name	Item	Weight	Eigen-value	Pct of Var	Cum Pct
1: They Decide			3.42	48.9	48.9
	Principal	.71			
	Tradition	.62			
	District Admin.	.90			
	Central Admin.	.92			
	School Comm.	.83			
2: We Decide			1.90	27.2	76.1
	Individual T's	.86			
	Groups of T's	.89			

TABLE 12.7

Percentage Distribution of Teachers' Responses to Items Regarding Their Perceptions of Factors Which Influence Teaching Objectives

Importance of each factor in determining teaching objectives for your students	very important		somewhat important		very unimportant
A. School policy	28.1	21.3	30.3	12.4	07.9
B. Student interest	42.2	31.1	16.7	10.0	00.0
C. Individual student ability	57.1	31.9	07.7	03.3	00.0
D. Your personal preference	15.9	29.5	39.8	11.4	03.4
E. Available textbooks	42.7	23.6	15.7	10.1	07.9
F. Other available resources	38.6	23.9	26.1	06.8	04.5
G. What will be tested	21.6	25.0	35.2	05.7	12.5

TABLE 12.8

Results of Factor Analysis of Seven Items Regarding Teachers' Perceptions Of Factors Which Influence Their Teaching Objectives

Factor Number & Name	Item	Weight	Eigen-value	Pct of Var	Cum Pct
1: Practical/Actual			2.66	28.0	38.0
	Student ability	.50			
	Available texts	.85			
	Other resources	.65			
	What is tested	.61			
2: Theoretical/Ideal			1.04	14.9	52.9
	School policy	.65			
	Student interest	.67			
	Teacher preference	.70			

The distributions of percentages in Table 12.5 are very skewed; the first two rows of percentages indicate that the teachers felt they and their colleagues had very little influence on the school's curriculum. In contrast, the last five rows show higher percentages toward the direction of much influence, which they attribute to administrators, the school committee (which is factually arguable), and tradition. The results of factor analysis in Table 12.6 confirm this, yielding a "we-they" split.

As shown in Table 12.7, teachers rated their own personal preferences as least important, and school policy only slightly higher. Teachers rated individual student ability as the most important, yet, as shown in Table 12.8, these three items fell together on the second factor, distinct from the remaining four which weighted on the first factor. What appears to separate the two groups of items is the distinction between practical or actual influences on objectives which contribute to Factor 1, as opposed to theoretical or ideal considerations which comprise Factor 2.

Meeting Student Needs: Assessing Accomplishments and Setting Priorities

Section 18 on the Teacher Questionnaire comprised a very long set of items given in two parts. Teachers were asked to indicate for each of 31 areas first, how successful their school has been with regard to meeting student needs, and second, what priority their school should place on that area. Teachers were instructed to leave the item blank if they had no opinion. Percentage distributions of their responses to these items are given in Table 12.9. The rank order, means and the standard deviations for each item are given in Table 12.10. Discrepancy scores were calculated by subtracting teacher ratings for the priority they would assign to a given item from their estimate of the success which their school had achieved. The discrepancy scores are designed to indicate the salience or importance of each area of need.

The overall mean for the four schools would indicate that teachers assess their greatest success to be in the area of teaching computer skills. However, a highly significant difference among the school means was found for this item. As indicated in Table 12.11, the great success in teaching computer skills was reported by teachers in School 4, whose mean reflected nearly twice the level of success reported by teachers in the other three schools. The outcome was not surprising because for years the former principal of School 4 had been writing proposals and winning support and equipment for computer environments in that school. Analysis of the discrepancy scores for this area also produced a very significant difference among schools. Inspection of the means showed that teachers in School 4 felt their school had been so successful in teaching computer skills that it exceeded the priority which should be assigned to that area. It was the only case in the 31-item set for which a negative mean value was obtained for a discrepancy score. As an overall school mean, it ranked dead last in terms of needs to address. But again, since highly significant differences were found, individual school means should be examined.

In the area of bilingual education, significant differences were found among schools for both the success and the priority assigned. On both measures, teachers in Schools 1 and 2, which have bilingual programs, offered more positive ratings than teachers in Schools 3 and 4, which do not. However, since the discrepancies were minimal, bilingual education was an area rated second to last for warranting attention, for all four schools.

Several of the more successful efforts by the schools, which were noteworthy from the teachers' point of view, dealt with socioemotional needs and values: creating a caring environment, showing concern for students' personal needs, and providing positive role models, which ranked second, fourth, and fifth, respectively. Teaching special education ranked third among teacher estimates of success; all four schools had a substantial number of their students in some form of special education program. The low ranking for discrepancy suggests that special education may be overemphasized, or that the schools' emphasis is balanced on that issue. Teachers judge their schools to be least successful in providing pregnancy counseling, teaching art and music, sex education, and occupational counseling, which rank in ascending order from the bottom. But while they feel they are not successful in these areas, teachers do not assign high priority to some of the areas, and they differ by school in their assignment of priorities to others of these issues, notably teaching art and music, and providing occupational counseling, so school level decisions appear to be important.

TABLE 12.9

Percentage Distribution of Teachers' Responses to Items Regarding How Successful Their School Has Been in Meeting Student Needs in Various Areas, and What Priority Should Be Placed on Those Areas

A.	Teaching basic literacy skills	very successful	11.4	23.9	45.5	12.5	06.8	very unsuccessful
		high priority	72.1	18.6	05.8	02.3	01.2	low priority
B.	Teaching writing	very successful	11.8	22.4	44.7	14.1	07.1	very unsuccessful
	each cat-missing 7	high priority	65.9	20.0	08.2	03.5	02.4	low priority
C.	Teaching mathematics	very successful	20.7	22.0	42.7	09.8	04.9	very unsuccessful
	each cat-missing 10	high priority	69.5	23.2	06.1	01.2	00.0	low priority
D.	Teaching science	very successful	10.0	27.5	41.2	10.0	11.2	very unsuccessful
	suc-miss 12, pri-miss 11	high priority	40.7	28.4	22.2	07.4	01.2	low priority
E.	Teaching social studies	very successful	15.0	30.0	35.0	13.7	06.3	very unsuccessful
	suc-miss 12, pri-miss 13	high priority	41.8	32.9	20.3	02.5	02.5	low priority
F.	Teaching computer skills	very successful	36.4	19.5	31.2	10.4	02.6	very unsuccessful
	suc-miss 15, pri-miss 16	high priority	39.5	35.5	17.1	07.9	00.0	low priority
G.	Teaching thinking skills	very successful	14.6	15.9	26.8	26.8	15.9	very unsuccessful
	suc-miss 10, pri-miss 9	high priority	63.9	16.9	08.4	07.2	03.6	low priority
H.	Teaching bilingual education	very successful	21.7	21.7	30.0	10.0	16.7	very unsuccessful
	each cat-missing 32	high priority	35.0	18.3	21.7	10.0	15.0	low priority
I.	Teaching special education	very successful	21.8	38.5	28.2	05.1	06.4	very unsuccessful
	suc-miss 14, pri-miss 13	high priority	55.7	24.1	15.2	05.1	00.0	low priority
J.	Teaching multicultural education	very successful	13.3	22.7	36.0	14.7	13.3	very unsuccessful
	suc-miss 17, pri-miss 18	high priority	35.1	25.7	21.6	09.5	08.1	low priority
K.	Teaching art and music	very successful	05.5	12.3	26.0	19.2	37.0	very unsuccessful
	suc-miss 19, pri-miss 21	high priority	26.8	21.1	32.4	02.8	16.9	low priority
L.	Teaching the gifted and talented	very successful	12.5	29.2	15.3	23.6	19.4	very unsuccessful
	suc-miss 20, pri-miss 19	high priority	34.2	32.9	20.5	04.1	08.2	low priority
M.	Teaching moral/ethical values	very successful	14.1	10.3	24.4	23.1	28.2	very unsuccessful
	suc-miss 14, pri-miss 13	high priority	46.8	15.2	25.3	06.3	06.3	low priority
N.	Teaching social courtesies	very successful	10.0	10.0	30.0	22.5	27.5	very unsuccessful
	each cat-missing 12	high priority	45.0	25.0	20.0	03.7	06.3	low priority
O.	Promoting students self esteem	very successful	15.7	21.7	36.1	19.3	07.2	very unsuccessful
	suc-miss 9	high priority	59.3	18.6	17.4	03.5	01.2	low priority
P.	Providing occupational	very successful	08.2	09.6	30.1	26.0	26.0	very unsuccessful
	counseling	high priority	29.7	23.0	27.0	12.2	08.1	low priority
	suc-miss 19, pri-miss 18							
Q.	Providing educational	very successful	07.9	27.6	25.0	19.7	19.7	very unsuccessful
	counseling	high priority	38.2	31.6	15.8	10.5	03.9	low priority
	each cat-missing 16							

Table 12.9 (cont.)

R.	Making rooms/corridors attractive	very successful	23.6	27.0	28.1	10.1	11.2	very unsuccessful
		high priority	40.9	33.0	18.2	03.4	04.5	low priority
S.	Providing general health education	very successful	10.0	28.7	26.2	18.8	16.2	very unsuccessful
	suc-miss 12, pri-miss 14	high priority	38.5	34.6	14.1	07.7	05.1	low priority
T.	Providing nutritious meals	very successful	24.4	23.3	23.3	04.7	24.4	very unsuccessful
	pri-miss 9	high priority	42.2	24.1	19.3	02.4	12.0	low priority
U.	Providing a drug education program	very successful	25.3	29.9	21.8	09.2	13.8	very unsuccessful
		high priority	54.0	26.4	12.6	01.1	05.7	low priority
V.	Providing an AIDS education program	very successful	16.2	20.0	22.5	18.8	22.5	very unsuccessful
	suc-miss 12, pri-miss 10	high priority	48.8	23.2	18.3	03.7	06.1	low priority
W.	Providing a sex education program	very successful	09.2	11.8	22.4	28.9	27.6	very unsuccessful
	suc-miss 16, pri-miss 9	high priority	39.8	20.5	19.3	10.8	09.6	low priority
X.	Providing pregnancy counseling	very successful	08.0	10.7	18.7	20.0	42.7	very unsuccessful
	suc-miss 17, pri-miss 12	high priority	33.7	20.0	20.0	12.5	13.7	low priority
Y.	Providing referrals to social service agencies	very successful	22.7	21.3	34.7	10.7	10.7	very unsuccessful
	suc-miss 17,pri-miss 13	high priority	45.6	26.6	20.3	05.1	02.5	low priority
Z.	Providing positive role models	very successful	21.7	32.5	31.3	09.6	04.8	very unsuccessful
	each cat-missing 9	high priority	48.2	31.3	13.3	06.0	01.2	low priority
a.	Providing a safe, orderly environment	very successful	21.1	40.0	14.4	12.2	12.2	very unsuccessful
		high priority	70.8	19.1	06.7	01.1	02.2	low priority
b.	Creating a caring environment	very successful	26.7	32.2	28.9	07.8	04.4	very unsuccessful
		high priority	65.9	18.2	10.2	04.5	01.1	low priority
c.	Showing concern for students' personal needs	very successful	22.5	33.7	32.6	06.7	04.5	very unsuccessful
		high priority	59.8	23.0	11.5	03.4	02.3	low priority
d.	Setting high expectations for students	very successful	14.6	28.1	34.8	14.6	07.9	very unsuccessful
		high priority	54.5	28.4	11.4	03.4	02.3	low priority
e.	Involving parents in student learning	very successful	08.9	14.4	26.7	27.8	22.2	very unsuccessful
		high priority	58.1	22.1	05.8	05.8	08.1	low priority

Table 12.10
Rank Order, Means and Standard Deviations of Ratings Given by Teachers in All Four Schools on How Successful Their Schools Have Been in Meeting Various Students' Needs, What Priority Their Schools Should Place on Each Area, and the Discrepancy Between the Two

31 Areas Rated Hi (1) to Low (5)	Success (S)			Priority (P)			Discrepancy (S - P)		
	Rank	$\bar{X}$	s	Rank	$\bar{X}$	s	Rank	$\bar{X}$	s
A. Teaching basic literacy skills	#14	2.80	1.03	# 2	1.42	.80	# 4	1.39	1.31
B. Teaching writing	#17	2.82	1.05	# 4	1.56	.96	# 6	1.25	1.54
C. Teaching mathematics	# 7	2.56	1.08	# 1	1.39	.66	# 8	1.20	1.28
D. Teaching science	#18	2.85	1.10	#19	2.00	1.02	#18	.85	1.39
E. Teaching social studies	#11	2.66	1.09	#14	1.91	.98	#21	.77	1.28
F. Teaching computer skills	# 1	2.23****	1.13	#16	1.93	.94	#31	.31***	1.22
G. Teaching thinking skills	#23	3.13	1.28	# 9	1.70	1.12	# 3	1.40	1.82
H. Teaching bilingual education	#13	2.78**	1.35	#29	2.52****	1.44	#30	.33	1.39
I. Teaching special education	# 3	2.36	1.08	# 9	1.70	.91	#27	.64	1.19
J. Teaching multi-cultural education	#19	2.92	1.21	#26	2.30	1.27	#28	.59*	1.46
K. Teaching art and music	#30	3.70**	1.24	#31	2.62*	1.37	#12	1.13	1.83
L. Teaching the gifted and talented	#21	3.08	1.35	#25	2.19	1.20	#19	.83	1.53
M. Teaching moral/ ethical values	#26	3.41	1.37	#22	2.10	1.25	# 5	1.29	1.66
N. Teaching social courtesies	#27	3.48	1.27	#20	2.01	1.17	# 2	1.49	1.65
O. Promoting students' self esteem	#15	2.81	1.14	# 7	1.69	.96	#11	1.14	1.48
P. Providing occupational counseling	#28	3.52	1.21	#28	2.01*	1.17	#14	1.08*	1.62
Q. Providing educational counseling	#24	3.16	1.25	#23	2.11	1.15	#16	1.03	1.52

Table 12.10 (cont.)

31 Areas Rated Hi (1) to Low (5)	Success (S)			Priority (P)			Discrepancy (S - P)		
	Rank	$\bar{X}$	s	Rank	$\bar{X}$	s	Rank	$\bar{X}$	s
R. Making rooms/ corridors attractive	# 9	2.58**	1.27	#17	1.98	1.07	#26	.64**	1.56
S. Providing general health education	#20	3.03**	1.24	#21	2.06	1.14	#17	.99	1.57
T. Providing nutritious meals	#16	2.81*	1.49	#24	2.18	1.34	#25	.67	1.62
U. Providing a drug education program	# 8	2.56	1.34	#11	1.78	1.09	#20	.78	1.45
V. Providing an AIDS education program	#22	3.11*	1.40	#18	1.95	1.17	# 9	1.17	1.61
W. Providing a sex education program	#29	3.52**	1.27	#27	2.30	1.35	#10	1.15	1.70
X. Providing pregnancy counseling	#31	3.79*	1.32	#30	2.53	1.42	# 7	1.24	1.72
Y. Providing referrals to social agencies	#10	2.65	1.25	#15	1.92	1.05	#22	.74	1.32
Z. Providing positive role model	# 5	2.43	1.08	#12	1.81	.97	#29	.58	1.39
a. Providing a safe, orderly environment	# 6	2.54****	1.29	# 3	1.45	.85	#13	1.10**	1.43
b. Creating a caring environment	# 2	2.31*	1.09	# 5	1.57	.93	#23	.74	1.26
c. Showing concern for students'personal needs	# 4	2.37	1.05	# 6	1.66	.97	#24	.71	1.29
d. Setting high expectations for students	#12	2.73	1.12	# 9	1.70	.96	#15	1.03	1.41
e. Involving parents in student learning	#25	3.40	1.23	#13	1.84*	1.26	# 1	1.60	1.65

Note.– Teachers responded to each aspect in pairs according to the following format:

very successful	1	2	3	4	5	very unsuccessful
high priority	1	2	3	4	5	low priority

*Signifies significant differences among school means at p < .05
**Signifies significant differences among school means at p < .01
****Signifies significant differences among school means at p < .0001.

If discrepancy scores are indicative of the magnitude of need, then teachers feel that involving parents in student learning should receive foremost attention. Teachers made the same assessment in their response to items from another section of the questionnaire on what is important to them. Teaching social courtesies also stands out as an area requiring attention from the teachers' point of view, regardless of the school. On still another section of the questionnaire, teachers rated their students' prosocial behaviors more positively and their antisocial behaviors more negatively than the students did for themselves. But a review of teachers' examples suggested that some of them were citing very minor niceties to illustrate positive behaviors, and fairly objectionable infractions to illustrate anitsocial behaviors. (See Appendix A.4 for these examples.)

The descrepancy score for teaching thinking skills (comparing what the teachers think how well schools are doing versus what the priorities should be) ranked third, just barely ahead of the discrepancy score for teaching basic literacy skills. The difference in these ranks is not significant. Teachers feel that both are areas of great need in their schools, and indeed, their judgements are corroborated by much independent evidence. It is also important to note that the teaching of moral and ethical values drew an assessment of great importance to teachers. While it is an issue which ranks low in terms of how successful they are, the discrepancy between the estimates of success and priority places it close to the top as an area in need of the school's attention.

Individual Differences Among Schools

School differences in the teachers' estimates of success their schools have achieved in various areas, the priorities which should be assigned, and the discrepancy values are highlighted in Table 12.11. Especially striking is the number of areas on which schools differ significantly in the rates of success reported by their teachers. It is also noteworthy that for the most part, these teachers' judgements correspond closely with other independent assessments about their schools.

Special Instructional Programs

The first major difference which is reported in Table 12.11 separates School 4 from the other three schools for its special emphasis on computers, something which

TABLE 12.11

Summary of Significant F Ratios from One-Way Analyses of Variance of Teacher Ratings of Their School's Success Versus Priorities in Meeting Students' Needs and Duncan Tests of the Significance of Mean Differences Among Schools

Aspect of School Program Rated High (1) to Low (5)	Success (S)		Priority (P)		Discrepancy (S-P)	
	F	$\bar{X}$ Differences	F	$\bar{X}$ Differences	F	$\bar{X}$ Differences
F. Teaching computer skills	9.20****	Sch 4<2,3,1	NS		7.34***	Sch 4<3,2,1
H. Teaching bilingual education	4.46**	Sch1,2<3,4	8.68****	Sch1,2<3,4	NS	
J. Teaching multicultural education	NS		NS		3.36*	Sch 2,4<1,3
K. Teaching art and music	4.61**	Sch 2,3<1,4	3.63**	Sch 3<4	NS	
P. Providing occupational counseling	NS		2.92*	Sch 1,3<4	2.92*	Sch 4<3,1
R. Making rooms/ corridors attractive	4.27**	Sch 2,4<3	NS		4.85**	Sch 2,4<1,3
S. Providing general health education	5.01**	Sch1,3,2<4	NS		NS	
T. Providing nutritious meals	3.42*	Sch 2<4,3	NS		NS	
V. Providing an AIDS education program	3.35*	Sch 3,1<4	NS		NS	
W. Providing a sex education program	4.16**	Sch 3,1<4,2	NS		NS	
X. Providing pregnancy counseling	2.85*	Sch 1,3<2	NS		NS	
a. Providing a safe, orderly environment	10.65****	Sch 2,4<1<3	NS		3.84**	Sch 2,4<1,3
b. Creating a caring environment	3.37*	Sch 2,4<3	NS		NS	
e. Involving parents in student learning	NS		2.89*	Sch 2,1<3	NS	

*p < .05
**p < .01

Note.–Lower means indicate higher levels of success and priority and smaller discrepancies.

is readily confirmed on inspection of the school sites. Interestingly teachers in School 4 felt that their school's success in this area exceeded what the priority should be. The second significant difference was found in the area of bilingual education, for which teachers in Schools 1 and 2 reported greater success and also placed greater priority than teachers in Schools 3 and 4, not surprisingly because the former schools had bilingual programs serving students who were not fluent in English, where as the latter two schools did not.

Physical Appearance of School Facilities

Teachers in schools 2 and 4 rated their schools' success more highly on making common spaces in their school attractive than teachers in School 3; and the need to do something about this issue is suggested by the significantly higher discrepancy scores for teachers in both Schools 1 and 3. These differences did not correspond with the state of repair of the physical plants, except for School 2, which was judged to be the most advantaged physical facility. Schools 3 and 4 were the oldest and most decrepit facilities of the four, but despite its age (about 100 years old), School 4 reflected the efforts of its members to improve its appearance with extensive murals, paintings, banners, etc., made by its students. There was some evidence of attempts to improve the cosmetic appearance of School 3 but the efforts were very uneven throughout the building.

Attributes of the School Environment

Environmental sociologists would not be surprised to find that making schools and corridors attractive, as well as providing a safe, orderly environment were issues on which school differences reflected similar patterns, the former probably following the latter as a necessary precondition. A safe, orderly environment is a basic human need as well as a critical feature of successful schools which is well substantiated by research. Teachers in the higher achieving schools, Schools 2 and 4, reported very significantly higher levels of success by their schools in providing safe, orderly environments than teachers reported for Schools 1 and 2; the contrast between the higher achieving schools and School 3 was especially noteworthy.

School 1 is much larger than the others and serves a heterogeneous mix of racial and ethnic minorities, including a large group of black Hispanics in its bilingual program as well as substantial numbers of native born black Americans. The noise and energy levels which explode upon change of classes by 700 early adolescents impress even the most casual observer of School 1. Size alone may account for the tenuous sense of safety and order reported by its teachers. Its student composition may be a contributing factor. An incident observed by the principal investigator illustrates this point. Just as the principal had given me an enthusiastic greeting, two students appeared in the reception area complaining in halting English about an episode with another student . The principal, herself an articulate, dedicated, and dynamic black woman of stately presence, began an animated conversation with the students, first in Spanish, then Haitian French. The matter was settled quickly and the young black youths returned to their classrooms. The principal turned to me laughing: "They were complaining about 'the American.' That's what they call black students who were born here." The incident was not about race or class, but about language and culture.

The teachers in School 3 rated their school's success in providing a safe, orderly environment much lower than any of the other three schools. School 3 was a troubled school in a troubled area. The principalship of this predominantly black neighborhood school had changed hands three times in six months. The ex-marine who was in charge when the study was first engaged was reassigned in August, 1988, when a new, inexperienced, former vice principal was appointed to the post. A student of the effective schools literature, the second man set out to create a five-year plan for the school, ignoring the substantial efforts of the continuing vice-principal and a coalition of the faculty on another plan. He was dismissed in January, 1989, amidst growing staff turmoil; next, a woman was named in charge. She had apprenticed as vice principal under a principal considered to be one of the finest in the system, a person who saw fit to give hands-on field experience to his vice-principals in a school noted for its excellence. The newest principal had only four months to lead School 3 when the data were collected from the teacher questionnaire.

Not only were internal problems evident in School 3, tensions had increased in the surrounding neighborhood. The relative calm of Summer, 1988 gave way to episodes of gang violence in areas close to the school. Some of the teachers claimed the school's climate was worsened by the assignment of students from warring gangs to their school. However, among this staff marked by rapid turnover of more junior faculty members, senior teachers who lived in the neighborhood as well as the assistant administrators who provided much needed stability, saw the situation differently. The tensions outside the school were unmistakable, but inside the school gang related unrest was not the case, in their view. An incident reported previously in this report illustrates this view. A fight had occurred a few yards outside the school's front door; five boys were beating up on a girl, all young adolescents, none of whom was a student at School 3. They had been walking home from early dismissal from a parochial school nearby.

Consistent with the findings just presented, teachers in Schools 2 and 4 feel their schools have been more successful in creating caring environments than teachers in School 3. School 1, which figured on the negative side of the significant differences in the schools' success in providing safe, orderly environments, was not significantly different from the other schools in creating an orderly environment. By many accounts and from other parts of the questionnaire data, it can be said that School 1 has an ethic of caring, but its size may detract from the order, if not the safety, of the environment.

The item on providing nutritious meals is included in this section on attributes of the school environment because significant differences among schools correspond directly with whether or not the school has a cafeteria. School 2, which teachers judged to be most successful in this regard, has a cafeteria; Schools 3 and 4 do not. (They have lunch rooms, but there are no cooking facilities.) School 1 has a cafeteria but its mean ranked in between and was not significantly different from the others.

Education and Counseling on Contemporary Issues and Problems

Several items were posed to teachers which dealt with students' need for education in areas which were not part of a school's traditional curriculum: general health, drug abuse, AIDS, sex education, and pregnancy counseling. The only one of these for which teacher estimates of success did not differ significantly among schools was success in providing a drug education program. This issue received a high rank both in terms of success (#8 from the top) and in terms of what its priority should be (#11 from the top out of 31 issues). Widespread, well founded fears on the influx of crack cocaine into the Boston area in Summer, 1988 was met with stepped up attention to drug education in the schools beginning in September, 1988. The priority has been sustained, and police have reported minor relief that use of crack did not skyrocket as predicted, although gang violence has escalated to unprecedented levels.

Significant differences among schools in teacher estimates of success were found for the items on meeting students' needs in other areas of health education and counseling. A clear pattern emerged. As shown in Table 12.11, teachers in Schools 1 and 3 uniformly rated their schools' success higher than teachers in one or both of the more academically oriented schools (Schools 2 and 4) on all of the following issues: providing general health education, AIDS education, sex education, and pregnancy counseling. Despite the lesser success of Schools 2 and 4 in these areas, the teachers did not think their schools should assign greater priority to these issues, as reflected in the lack of significant differences for discrepancy scores in the areas. The higher success rates in the nonacademic areas estimated by teachers for Schools 1 and 3 are consistent with what these teachers had to say in interviews and informal conversation--that their students had basic needs which were not being met at home and had to be met by the schools first, if the teachers were to move on to more academic issues.

The final item in this set dealt with the schools' involving parents in student learning. While success in this area was rated low (#25 out of 31), from the teachers' point of view, parental involvement ranked first in terms of the discrepancy between the school's success versus what priority it should receive. The schools were not significantly different on these findings. However, there were significant differences in the levels of priority which teachers felt their schools should assign. to promoting parent involvement. As noted in Table 12.11, teachers in Schools 2 and 1, the schools with bilingual programs, assigned higher priority to this issue than teachers in School 3, the predominantly black neighborhood school. Teachers in School 3 already worked closely with the parents when they could, but there were many single working parents, and reportedly, absent parents. For the teachers in School 3, more parental involvement did not hold great promise for success with their students.

Priorities for Teachers from the Students' Point of View

A much shorter list of priorities for teachers from the students' point of view was included on page 15 of the Student Questionnaire (See Appendix B.1). Nine teacher behaviors were prefaced with the stem: "It is important that teachers...." Factor analysis

TABLE 12.12

Results of Factor Analysis of Students' Perceptions of What Teachers Should Do

Factor Number & Name	Item	Weight	Eigen-value	Pct of Var	Cum Pct
1: Traditional Helping and Caring			3.44	38.2	38.2
	A. Help me do as well as I can on tests.	.59			
	B. Teach me about right and wrong.	.74			
	C. Show me how to get along with other people.	.76			
	E. Teach me how to read and write well.	.67			
	F. Make school a pleasant place to be.	.55			
	I. Care about my future.	.56			
2: Discuss Major Teen Problems			1.36	15.1	53.3
	D. Discuss drug abuse.	.70			
	G. Discuss teenage pregnancy.	.85			
	H. Discuss suicide.	.86			

of students' responses produced two significant factors which are presented in Table 12.12. The first factor entitled "Traditional Helping and Caring" behaviors drew six items loading .55 or higher. The second factor called "Discussing Major Teen Problems," drew three very homogeneous items--that it is important for teachers to discuss: drug abuse, teenage pregnancy, and suicide. All had very high weights, .70, .85 and .86 respectively.

Traditional Helping and Caring Behaviors from Teachers

A four-way analysis of variance of factor scores for Factor 1 produced clean, clear, and significant results. All main effects were significant; there were no significant interactions. These results are summarized in Table 12.13. The overall

TABLE 12.13

Summary of Significant F Ratios from Four-Way Analyses of Variance of Factor Scores On What Students Think Ideal Teachers Should Do, and Results of Duncan Tests Of the Significance of Mean Differences on Significant Main Effects: School, Grade, Sex and Race

Significant Effects	df	F	Duncan Tests of Mean Differences
FACTOR 1: Traditional Caring, Helping Behaviors			
School	3	3.43*	School 1 < School 2
Grade	2	9.76****	Grades 8 < Grade 6
Sex	1	7.22**	Males < Females
Race	4	3.95**	Whites, Blacks < Asians
No interactions			
FACTOR 2: Discussing Major Teen Problems			
School	3	6.34****	School 2,4 < Schools 1,3
Grade	2	NS	
Sex	1	40.54****	Males < Females
Race	4	3.37**	Others, Whites, Asians < Hispanics
School X Grade	6	2.82**	Very variable

*$p < .05$
**$p < .01$
***$p < .001$
****$p < .0001$

school difference significant at $p < .05$ was essentially a difference between students in School 1 versus School 2. An interpretation based on salience seems most appropriate. Students and teachers in School 1 reported significantly higher frequencies of prosocial, caring behaviors than students and teachers in School 2 (See Chapter 9.) As reported in Chapter 6, students in School 2 were more likely to say that their teachers promoted competition for test scores and independent learning as opposed to cooperative learning.

Grade differences and sex differences in the importance students assigned to traditional caring, helping behaviors by teachers were highly significant at $p < .0001$, and $p < .01$ respectively. Not surprisingly, students in grade 8 scored significantly lower on this factor than students in grade 6, and males reported significantly less caring on their part for caring, helping behaviors on the part of teachers.

Differences in racial ethnic groups on Factor 1 were significant at $p < .01$. White and black students reported significantly less value than Asians for traditional caring and helping behaviors offered to them by their teachers. Many explanations are possible; one is most consistent with data from the present study. As noted in Chapter 7, those students who have lesser value for the benefits of education for their future, are more often white and black students in the sample schools. More than Hispanics or Asians, whites and blacks attending these inner city schools don't value education for future jobs. And, as shown in Table 12.13, the don't care as much as Asian about traditional helping caring behavior demonstrated to them by teachers.

Teachers' Discussing Major Teen Problems

Results of a four-way analysis of variance applied to students' factor scores for the importance of having teachers discuss major teen problems are reported in Table 12.13. School differences were highly significant at $p < .0001$. The test of mean differences showed that students in Schools 2 and 4 felt it was significantly less important than students in Schools 1 and 3 that their teachers discuss drug abuse, teen pregnancy, and suicide with them. This finding parallels closely the differences between teachers in the four schools, which were summarized earlier in Table 12.11. Teachers in School 1 and 3 recognized their students' needs in the areas of pregnancy counseling, sex education, and AIDS education, and they reported their schools' greater success in these areas. Teachers in Schools 2 and 4, like their students, do not feel that these areas are important responsibilities for the schools. It could be argued that the students and teachers in the schools are simply reinforcing each other's points of view on these issues, and do not reflect real need, but visits to the schools and conversations with school personnel quickly dispel that argument.

The main effect for grade was not significant, although the interaction effect for grade and school was significant at $p < .01$. Inspection of the table of cell means for grades by schools showed several small, variable fluctuations in no particular pattern. The fact that there was no statistically significant grade effect among sixth, seventh, and eighth graders is itself of practical significance. If students feel a need for their teachers' help in discussing the major problems, the need is already established by sixth grade.

The analysis of Factor 2 scores produced a highly significant sex difference at $p < .0001$. Females in all schools placed substantially more importance than males on their teachers' discussing major problems with them. Since the factor included an item on teen pregnancy, as well as drug abuse and suicide, one might expect the females' scores to be higher, however, the sex difference may also reflect these females' greater willingness to ask for help. The significant difference by race/ethnicity placed Hispanics significantly higher than whites and Asians in the importance they assign to teachers' discussing major problems with them. The increasing rates of teen pregnancy among Hispanics, not just in these schools but nationally, may be reflected the students' response. But the difference may also parallel general cultural differences, with Hispanics more verbal and inclined to discuss issues with nonfamily members, and for young Asian students whose families prize academic achievement, these problems would be unthinkable.

Developing Strategies and Setting Priorities for School Reform

In the opening pages of this chapter, it was noted that both the school reform movement and the teaching profession are at a crossroads. The path of teacher empowerment in the reform of schools will require that schools become more participatory, collegial work environments for teachers, enabling them to behave as true professionals. If participatory, school-based management is to succeed as a strategy for implementing reforms, then a decision-making structure must be developed in which teachers identify problems, identify the resources needed to solve them, and work collaboratively toward their solution.

The most successful of the four schools in this study had been using a cluster system for many years, not unlike those used in many successful suburban middle schools, in which teachers worked together with the same group of students in all subject areas. Some teachers would have particular responsibility for certain subjects, but rigid teaching assignments by discipline were not used. The arrangement enabled the teachers to get to know their students well, and to shape the curriculum prescribed from "downtown" in ways that were responsive to their students' needs and abilities. ("Downtown" is the euphemism teachers use to identify the system's bureaucratic central administration.) The teachers in School 4 reported through their leader to the principal, who served as the decision maker with regard to the acquisition and allocation of resources.

Indicators for Deciding Which Issues to Address

Once an organizational structure is in place which will permit teacher participation in decision making, a strategic question must be addressed about *which decisions* teachers will be involved in making. Sections of the teacher questionnaire which were reported on in this chapter can be very useful to this end. The items in Section 14 can be used to determine those areas in which teachers feel they do have influence. Reconstructed as two-part items ("How much say do you have/should you have...), like those in Sections 17 and 18, the items can also be used to determine the broad areas in which teachers feel they ought to have a larger share in decision making. The items in Section 17 can provide another means for assessing what is most important to teachers in relation to their work. Then the specific content of the issues might be set according to the teachers' responses to questions about areas of success and priority for their schools, modeled after the items shown in Section 18.

The analysis of the data need be no more sophisticated than calculating means for each item and establishing their rank order. The ranks should not be used to mask what can be slight differences between adjacent means; rather, the extreme ranks are most telling about the school's high points and sore spots. If a much larger sample of teachers is surveyed, say in a large district, factor analysis might be used on the longer sets of items to discover a smaller number of underlying clusters. Factor scores would be calculated and their means determined by school. However, practitioners with whom we were able to discuss the results seemed to appreciate data which were directly linked to the actual questions their teachers answered.

It is also important to note two dramatically different kinds of experiences which we encountered in reporting the results to practitioners in the system. When we addressed teachers and principals with summaries of the student and teacher questionnaire results *for their own schools* they seemed fascinated with the results, studying them carefully, discussing them earnestly, pausing to contemplate, then going back for more. This was uniformly the case for group discussions with teachers and individual meetings with principals. However, when we presented some of the same data *anonymously* to Directors of Instruction for all middle schools in the system, identifying the data only as a summary from four of the system's middle schools, their response took other forms, from posturing ("Oh, well that wouldn't be true for the XYZ School"), to disinterest ("This has nothing to do with my school"), to mild interest ("I think it would be interesting to see how our school would respond").

The Concept of Discrepancy

The concept of discrepancy was very useful for formatting complex items, and for promoting efficient response. It also proved to be useful for analyzing the results of these lengthy item sets, reporting their results to principals and teachers in a meaningful fashion, and using the results to plan reforms. As applied in Section 17, the two-part format posed items which inquired about the importance teachers place on various aspects of their jobs and how satisfied they are with that aspect. Discrepancy scores were computed by subtracting satisfaction scores from importance scores for each teacher in order to provide a gauge on the saliency of the issues as targets for change. Important issues which were least satisfied received high discrepancy scores, as was the case for parental involvement. Important issues which provided high levels of satisfaction received low scores, as was the case for teacher student relationships. As shown in Table 11.2, the means by item for importance versus satisfaction versus their discrepancy are easily rank ordered. The format disentangles complex issues and aids the choice of targets for change.

Similarly, the items in Section 18 were given in two parts. Teachers were asked to indicate for each of 31 areas first, how successful their school has been with regard to meeting student needs, and second, what priority their school should place on that area. Discrepancy scores were calculated by subtracting teacher ratings for the priority they would assign to a given item from their estimate of the success which their school had achieved. The discrepancy scores are designed to indicate the salience or importance of each area of need. There were several examples of areas on which schools were significantly different by teacher estimates of success, but it was also the case that teachers did not hold high priorities for some of those areas. Again the concept of discrepancy proved useful for choosing problems to work on in their own schools.

It is recommended that the two-part format used in Sections 17 and 18 be applied to the items in Section 14. In retrospect, it would have been very useful to know the discrepancy between responses to: "How much say *do you have* in determining the following issues?", versus "How much say *should you have*...?

The Role of the Principal in All of This

The key issue in the success of school-based management for school reform is not *decentralization* but *participation* in decision making by the school's professional staff. Principals must share power with teachers. New forms of participation in decision making will require clarification of the basic tasks of administrators and teachers in this context. Debunking the myth of the "Great Principal" who surfaced in the literature from the first wave of school reform (Purkey & Smith, 1983), may be especially appropriate at this time.

Rallis and Highsmith make a compelling case that "the first realistic step in school improvement is to recognize that school management and instructional leadership are two different tasks that cannot be performed well by a single individual" (1986, p. 300). Principals must be managers first. They are responsible for the acquisition and allocation of a school's resources, and for establishing and reinforcing a climate that is conducive to learning, one that is free of disciplinary problems and embodies high expectations for student achievement. Some principals may be able to take on instructional leadership as well, but most do not have the time or resources to do both. This is particularly true in small schools, but even in larger schools with assistants who could assume some of the management functions, principals are not likely to have the content knowledge and pedagogical expertise to lead instructional development. Moreover, degree programs for administrators cover policy making, personnel management, finance, school law, and organizational theory, *not* subject matter content, teaching, curriculum, or philosophy of education.

Schools would be best advised to look within their own teaching ranks for instructional leaders who have the requisite breadth and depth of content, pedagogical and curricular knowledge, mediated by practical experience and sensitivity to human needs. Experienced master teachers within the schools should be identified and given the responsibility and accountability for working with their colleagues in meaningful systems of professional decision making. But, as Rallis and Highsmith are quick to point out, even someone with the necessary qualities and experience to be an instructional leader cannot be effective unless someone else is working full-time to manage the school. "The leader can empower; the manager must enable" (Rallis & Highsmith, 1986, p. 303).

The move to school-based participatory management might begin by differentiating management and leadership functions and determining who should assume those responsibilities. Again, the indicators developed through the present study can be useful to this end, but some disagreements should be expected. For example, administrators may think it is their prerogative to supervise teachers closely and assume sole authority for their evaluation, while teachers may feel that their peers should have a role in the evaluation process. Indeed, current research attests to this difference in point of view.

In a national survey of principals conducted by the Center for Research on Elementary and Middle Schools, 99.7% of the public and private school principals at all levels--elementary, middle, junior, and high school, indicated overwhelmingly that one component of their jobs is most important: observation of teachers and feedback on their performance. Other leadership components of their jobs received high ratings by principals, but some management functions were deemed to be less important. Only 30% of the principals cited personnel management as being above average in importance; the figures were 35% for coping with disorder, 40% for parent-community relations, and 53% for instructional management (CREMS, 1986).

Middle school teachers who constituted the sample for the present study had a different point of view, as illustrated in their responses (shown as percentages) to the following question from the teacher questionnaire:

25. What do you think the principal's job should be? Please rank order the following in terms of their importance, "1" being most important, "5" being least important.

1. to discipline the students
   1: 10.5   2: 16.3   3: 15.1   4: 20.9   5: 37.2

2. to supervise the teachers (Missing responses - 7)
   1: 09.4   2: 10.6   3: 25.9   4: 31.8   5: 22.4

3. to lead curriculum and program planning (Missing responses - 7)
   1: 21.2   2: 32.9   3: 25.9   4: 11.8   5: 08.2

4. to oversee school operations and scheduling (Missing responses - 8)
   1: 58.3   2: 22.6   3: 10.7   4: 07.1   5: 01.2

5. to provide resources to teachers (Missing responses - 15)
   1: 09.1   2: 26.0   3: 26.0   4: 22.1   5: 16.9

The teachers assigned their first and second place ranks overwhelming to the importance of the principal's management function in overseeing school operations and scheduling (80.9%), and least of all to supervising the teachers (20.0%). If the item is scored by weighting the ranks which teachers gave to the importance of the job function, a first place rank being a "5," a second place rank a "4," and so on, then the points resulting from this computation for each option are distributed as follows: 1.) 242 points; 2.) 253 points; 3.) 347 points; 4.) 429 points, and 5.) 289 points. Overseeing school operations and scheduling received by far the highest score; leading curriculum and program planning was a distant second, and providing resources to teachers a distant third. Disciplining students and supervising teachers fell close together at the bottom of the ratings.

In interviews, teachers had very strong statements to make about their principals. There appeared to be little equivocation about what their job should be and how they should engage it. Teachers liked principals who hold clear, high expectations; who practice strict, and consistent enforcement of discipline; who enforce a schedule which promotes attention to academics, and who limit interruptions to classes; who provide adequate resources to teachers; and who give teachers some say in decision making. All of our interviews noted a delicate balance between strong leadership and the sharing of power with teachers.

The research has been noting for some time the importance of the principal's leadership but the research is less clear on how the principals accomplish these things. Several quotes and anecdotes are reported here to specify how leadership is portrayed.

> *Ms. X is very supportive of the bilingual. She wanted the kids, fought for the new teachers she needed, and did all the extra work to reschedule the teachers in the middle of the semester.*

Another teacher related an anecdote about one bilingual student who was extremely upset and concerned about a serious problem at home. That student choose to seek help from an assistant principal, a real compliment to that person, she felt. One teacher seeking a well disciplined school with firmer control, security and safety and, therefore, more opportunity to deal with curriculum issues transferred to one of our schools and liked the style of his new principal very much: "Ms. Z is everywhere!" There's very little that gets by that woman " Another teacher: Mr. X has a lot to do with the atmosphere. There's freedom, trust, and a respect for the people who work in the building. I don't know how he does it. There's method to his madness..As a specialist, I've worked in several buildings in the systems, so I've seen a few principals and how buildings are run. Here it's like I died and went to heaven."

Clearly not all roles and responsibilities for teachers and administrators will fall out naturally. Teachers in this Boston sample reported dramatically different views on what the principal's role should be than principals reported for themselves in a national survey (CREMS, 1986). It should also be noted that principals were asked what were the most important aspects of their job. not how do they actually spend their time. In any case, negotiation will be needed among the professional staff if participatory school-based management is to be tried honestly. It may be that the "Great Principal" is one who is willing to share power with teachers, to enable them, so that they can empower themselves.

Summary and Discussion

After several years of sustained attention to the need to improve our nation's schools, the school reform movement is at a crossroads. So too is the future of the teaching profession in America. Either legislated prescriptions intended to raise standards will continue to strip teachers of opportunities to exercise seasoned judgement and professional discretion, or teachers will be empowered to engage in instructional leadership in schools which provide collegial work environments and opportunities to share in decision making.

The first wave of reform set out to raise standards, increase accountability, and promote rigor. The second wave is more enlightened, marked by a different and exciting agenda: participatory school-based management; cooperative, collegial school environments for both students and staff; flexible use of time; high expectations alongside an ethic of caring; curricula that focus on students' understanding, not only of what, but also their understanding of why and how; as well as an emphasis on higher-order thinking and complex problem solving for all students. This demanding agenda requires that teachers assume positions of instructional leadership in a work environment that treats them as professionals. Administrators cannot do it alone.

Teachers as professionals must be central to the new reform efforts. Staff development will be part of the solution, but it must be sustained and focus on content and programs which have solid grounding in research. Extended training and followup in a small number of programs of proven effectiveness must prevail over faddism, political pressures, and reigning ideologies. Otherwise we will see the pendulum swings of recurring reforms which only tinker with the system but fail to change in fundamental ways the way schools operate.

Participatory decision making through school based management is a strategy for reform which can enable structural changes to reach the student. Principals *and teachers* need to *participate in decisions* to affect what teachers do in the classroom.

This conception of school-based management requires a structure for decision making in which teachers identify problems, propose tentative solutions, and identify the resources needed to try them out. Team leaders, cluster coordinators, department heads, and assistant principals might serve as the advocates and negotiators for their teams of teachers. Principals must make the decisions on the acquisition and allocation of resources, while serving as the school's advocate to upper echelons of the system.

This participatory role for teachers in decision making at the site level requires that administrators recognize teachers as professionals who are trained to cope with uncertainty (Backarach & Conley, 1986) and who make scores of nontrivial decisions in the space of a single lesson (Berliner, 1984). Administrators must view teachers not as assembly line workers following fixed procedures, but as decision makers and problem solvers--true professionals who continuously refine and adapt their pedagogical knowledge to new situations and changing needs of students.

There has been considerable debate over which kinds of decisions teachers want to influence. Some researchers have found it striking how much teachers lack interest in major policy decisions, like budget, curriculum, and new programs. Research indicates that teachers want the greatest influence over operational classroom decisions including what to teach, how to teach and what textbooks to use. It would seem that day-to-day decisions rather than strategic choices are most important, but salience may be a factor; teachers are usually more concerned about budgets when they do not get the supplies they need. Reportedly, the decisions in which teachers feel most deprived are those which affect the boundary between the classroom and the school, which constrain teachers' decision making.

The debate over which decisions teachers want to make and ought to make may stem from different points of view on what constitutes their professional identity and expertise. Whatever the decisions which they are empowered to make, to do so effectively teachers need good information, not only from their own professional insights and considerable experience in their schools, but from research, including participatory research. It is time for school reforms which promote more professional work environments for teachers including greater participation in decision making and involvement in research which can be used to inform the issues for decision making.

The present study developed many indicators which can be used to gauge school effectiveness, including product measures or outcomes. But it is also important that educators examine carefully the inputs and the processes of schooling, in order to make informed decisions about which reforms to undertake and how to proceed. The study considered demographic characteristics of students and teachers, what values students hold, and what is important and satisfying to teachers might be considered indicators of inputs. We also developed process indicators which might be used to guide restructuring, help participants establish priorities, and identify strategies for change.

The items in Section 14 of the Teacher Questionnaire were developed to assess teachers' perceptions of how much say they have in 25 areas of influence. The distributions of percentages of teachers choosing each option to each item show striking skewness; either teachers feel they have a lot of say over a given issue or almost none. Very few distributions reflect a middle range of influence. Not surprisingly, teachers say they have greatest control over their own teaching methods and somewhat lesser influence over what informal tests are given, what supplementary materials they use, and what student grades are assigned. Means indicating a moderate level of influence are reported for the items on what instructional objectives are set, what content they teach, and whether students are promoted. More than half of the areas (14 out of 25) received mean ratings by teachers which were in excess of 4.0 on a five point scale, where a "5" meant no influence, indicating the teachers feel they have very little, if any, say about many areas related to their work.

Section 18 on the Teacher Questionnaire was designed to assist school personnel in assessing their accomplishments and in setting priorities for meeting student needs. It was a long set of items given in two parts. Teachers were asked to indicate for each of 31 areas first, how successful their school has been with regard to meeting student needs, and second, what priority their school should place on that area. Teachers were instructed to leave the item blank if they had no opinion. Discrepancy scores were calculated by subtracting teacher ratings for the priority they would assign to a given item from their estimate of the success which their school had achieved. The discrepancy scores were designed to indicate the salience or importance of each area of need.

If discrepancy scores are indicative of the magnitude of need, then teachers feel that involving parents in student learning should receive foremost attention. Teachers made the same assessment in their response to items from another section of the questionnaire on what is important to them. Teaching social courtesies also stands out as an area requiring attention from the teachers' point of view, regardless of the school. Teaching thinking skills ranked third in terms of what the teachers think schools are doing well versus what the priorities should be, and just barely ahead of teaching basic literacy skills. The difference in these ranks is not significant. Teachers feel that both are areas of great need in their schools, and indeed, their judgements are corroborated by much independent evidence. It is also important to note that the teaching of moral and ethical values drew an assessment of great importance to teachers. While it is an issue which ranks low in terms of how successful they are and also what the priority should be for that area, the discrepancy between the estimates of success and priority places it close to the top as an area in need of the school's attention.

School differences in the teachers' estimates of the success their schools have achieved in various areas, the priorities which should be assigned, and the discrepancy values are highlighted. Especially striking is the number of areas on which schools differ significantly in the rates of success reported by their teachers. It is also noteworthy that, for the most part, these teachers' judgements correspond closely with other independent assessments about their schools. Oftentimes the areas in which schools differed significantly in their rates of success did not reflect significantly different discrepancy scores, because teachers did not uniformly hold high priorities for those items. The concept of discrepancy proved to be useful for helping teachers choose problems to work on in their own schools.

Once an organizational structure is in place which will permit teacher participation in decision making, the sets of items from the teacher questionnaire can be used to address the strategic question about *which decisions* teachers will be involved in making. The broad areas in which teachers want to play larger roles in decision making can be determined first by the kinds of items in Section 14 (How much say *do you have* over the following issues," *versus* "How much say *should you have*...?"). The items in Section 17 can provide another means for assessing what is most important to teachers in relation to their work. Then the specific content of the issues might be set according to the teachers' responses to questions about areas of success and priority for their schools, modeled after the items shown in Section 18. The analysis of the data need be no more sophisticated than calculating means for each item and establishing their rank order. The ranks should not be used to mask what can be slight differences between adjacent means; rather, the extreme ranks are most telling about the school's high points and sore spots.

It is also important to note two dramatically different kinds of experiences which we encountered in reporting the results to practitioners in the system. When we addressed teachers and principals with summaries of the student and teacher questionnaire results *for their own schools* they seemed fascinated with the results, studying them carefully, discussing them earnestly, pausing to contemplate, then going back for more. However, when we presented some of the same data *anonymously* to Directors of Instruction for all middle schools the system, identifying the data only as a summary from four of the system's middle schools, their response took other forms, from posturing, to mild interest, to disinterest.

The key issue in the success of school-based management for school reform is not *decentralization* but *participation* in decision making by the school's professional staff. Principals must share power with teachers. New forms of participation in decision making will require clarification of the basic tasks of administrators and teachers in this context. Debunking the myth of the "Great Principal" who surfaced in the literature from the first wave of school reform may be especially appropriate at this time.

Rallis and Highsmith make a compelling case that "the first realistic step in school improvement is to recognize that school management and instructional leadership are two different tasks that cannot be performed well by a single individual" (1986, p. 300). Principals must be managers first. They are responsible for the acquisition and allocation of a school's resources, and for establishing and reinforcing a climate that is conducive to learning, one that is free of disciplinary problems and embodies high expectations for student achievement. Some principals may be able to take on instructional leadership as well, but most do not have the time or resources to do both.

Schools would be best advised to look within their own teaching ranks for instructional leaders who have the requisite breadth and depth of content, pedagogical and curricular knowledge, mediated by practical experience and sensitivity to human needs. Experienced master teachers within the schools should be identified and given the responsibility and accountability for working with their colleagues in meaningful systems of professional decision making. But, even those with the necessary qualities and experience to be an instructional leader cannot be effective unless someone else is working full-time to manage the school. It may be that the "Great Principal" is one who is willing to share power with teachers, to enable them, so that teachers can empower themselves, and minister to students more effectively.

CHAPTER 13

SUMMARY, CONCLUSIONS, AND SIGNIFICANCE

Impetus for the Study

The most widely used metric for assessing school effectiveness has been student scores on standardized tests of basic skills. But this practice fails to credit schools for providing health and social services meeting basic human needs for a number of their students, and it provides little incentive for schools to go beyond basics. This research sought to define more broadly the desired outcomes of effective schooling and to examine the practices and conditions in the school environment which promote positive behaviors.

The importance of school climate for school effectiveness cannot be underestimated, according to the findings of several major studies. The school climate communicates important messages for peer group norms, student interaction, and student – teacher interaction. There is also important research on how work norms among the faculty appear to be especially important determinants of school effectiveness. When teachers have a shared sense of collegiality and collectively embrace the need for continuing improvement, they create more constructive and productive environments for teaching and learning.

Increasingly, schools are being targeted as the center for the dissemination of a broad range of health and social services. This is particularly so for schools in disadvantaged urban areas. Here many students go to school to find an environment which is safer, warmer, or more secure than home, where they can get a nutritious breakfast and lunch they would not otherwise have, and where they can interact with caring adults. Hospitals, courts, and other social agencies have targeted urban schools as the points to access children and youth in need of prevention and intervention programs, before it's too late. Schools are being charged with meeting basic human needs formerly served by the family, the church, and other institutions in society. Without these services, we may well have a society in chaos.

Strategies for Collaborative Research

University/school collaboration in the conduct of this research was envisioned from the start. The thrust was to develop valid, practical indicators which can capture information about school climate which the research literature has demonstrated is relevant to student achievement. We sought results which could be used to inform educators and policy makers about school level practices which need to be instituted or changed to promote student achievement. The definition of student achievement was broadened to include not only performance on standardized tests of basic skills but also higher order thinking and problem solving, prosocial behavior and community service.

Student and teacher questionnaires were developed in collaboration with educators in the schools. They were designed to yield comprehensive portraits of school climate, including the people and their attributes, the social system and its patterns of relationships and interactions, and the culture of the school, including the norms, values, and beliefs reflected in the behavior of its members. Teacher interviews and observation were used to complement and cross-reference the data obtained from the previous sources.

Teacher questionnaires were administered at a time when teachers were occupied with demands for system wide testing and other end of the year activities. Many teachers were worried about lay-offs, and morale was low, in some schools more than others. Against these odds, the rate of return for teacher questionnaires was approximately 50%. The student questionnaire was administered earlier, in March, 1989, with outstanding cooperation from the teachers and administrators in the schools. The return rate equalled the attendance rate for the days of administration, 80%. In fact, we had a larger response rate to the student questionnaire than the Boston Public School had for its grade and test files on the students in the sample.

The usable number of cases for all student instruments and measures are listed below:

Student Climate Survey	1583
MAT Reading	1279
MAT Mathematics	1265
CRT-Math	1145

Test of Problem Solving	972
Final Grade in Reading	1175
Final Grade in Math	1548
Final Grade in English	1484
Final Grade in Science	1337
Final Grade in Social Studies	1263

The Schools and the Students They Serve

The four middle schools in the sample were described using information collected about each school on each of the following aspects: the buildings and their neighborhoods; the resources; the principals; the students; the teachers; and the school activities, both curricular and extracurricular. Data were gathered from city records, newspapers, interviews, and observations over three years. While the four middle schools in this sample are part of the same school system, teach the same grades, and draw from a similar pool of students and teachers, there were notable differences.

The sample sites for the research were four middle schools located in one district of the Boston Public Schools which had been paired officially with Boston University for 15 years, as part of a court ordered desegregation plan. While the neighborhoods were diverse, the students who attended the schools were more homogeneous economically, if not ethnically and racially, than their neighborhoods. This was the case because oftentimes families with financial discretion did not send their children to the public schools. The pattern was especially true for parents of females, who , if they had marginal financial discretion, would choose to send their sons, but not their daughters, to these schools. One of the first and most startling findings about the four schools in the sample was the overall sex ratio: almost 55% to 45%, males to females.

The one relatively more affluent neighborhood which was the setting for Schools 2 and 4 in the sample included a preponderance of childless households, including elderly people and young professionals. College and graduate students and unrelated people living together to share expenses were attracted to these neighborhoods, and inflate the median household income. Middle school students were bussed to Schools 2 and 4 in larger numbers than to the other two schools, which drew more heavily from their own neighborhoods. The neighborhood for School 3 would be considered the most disadvantaged.

Figures reported in City of Boston's *Neighborhood Profiles* (1988) show the following differences based on 1984 data:

Neighborhood	Median Household Income	Unemployment Rate	Percent in Poverty
School 1	$16,950	11%	31%
Schools 2 & 4	$22,400	3%	17%
School 3	$13,000	14%	31%
Citywide	$19,250	6%	21%

The administration of student questionnaires in the four schools was extremely successful in achieving a return rate which was equal to the attendance rate, or about 85% of the schools' enrollments, thanks in large measure to the high degree of cooperation offered by the teachers and administrators in the schools. Student data reported in the study was corroborated by data available from the Boston Public Schools. The figures on students presented here are those taken from self reports.

Most of the students in the sample schools were minority group members. Of the major ethnic groups, Schools 2 and 4 presented a more balanced student population, while School 1 with its Hispanic bilingual program had a majority of Hispanics, while School 3 in a predominantly black neighborhood had an enrollment which was more than two-thirds black. Their racial/ethnic distributions were as follows:

Race/Ethnicity	Asian	Black	White	Hispanic	Other
School 1	2.4%	30.3%	7.2%	55.8%	4.3%
School 2	24.4%	25.7%	10.8%	33.2%	5.8%
School 3	2.9%	67.1%	6.2%	18.6%	5.2%
School 4	26.8%	36.0%	12.6%	18.6%	6.0%

The vast majority of students at the four schools reported their ages to be between 12 and 14, in March of their school year. Only 12% were younger than 12 years of age, and 10.5% were older than 14. School 4 was significantly different from the other three schools in enrolling a majority of girls. The sex ratios taken from student questionnaires in the four schools were as follows:

Sex Ratio	Male	Female
School 1	53.1%	46.9%
School 2	59.2%	40.8%
School 3	56.6%	43.3%
School 4	48.0%	52.0%

Building, Size, and Scheduling

All of the school buildings were old, consequently needing constant and costly maintenance. School 3 and a part of School 4, having been built at the turn of the twentieth century, were thirty years older than the other schools. The others, Schools 1 and 2, and the annex to School 4, were built in the 1930's. School 1 housed the largest student population; almost two and a half times that of School 3, and 1.67 times the size of Schools 2 and 4.

Scheduling at School 1 differed from that of the other three schools. School 1 had 5 periods plus homeroom and a silent reading period. The additional time needed for each period at School 1 may have been necessary simply for its very large student body to move from class to class. The other three schools had six periods plus homeroom and silent reading periods. They scheduled 45-minute classes, creating an additional period from the saved minutes.

Scheduling at School 4 was very precise. A teacher said, "Classes start five minutes before the official time. The filing rule means all students and all teachers are in corridors as students file in single file along corridors to the next class. Clocks, watches, etc. are synchronized."

Principals

During the past 10 years, Schools 1 and 4 had experienced the sustained leadership of one principal for 10 and 8 years respectively. The principal of School 4 had resigned that position to assume an assistant superintendency. His successor was assigned in a smooth, orderly fashion. School 2's principal was entering his third year in office there during the year of most data collection for the study; he was transferred in the final year of the study, and replaced by another man. But School 3 had had a succession of three principals in the year and a half of data collection. Among all of the principals, the six men included one Asian, one white, two Hispanics and two blacks. Both women were black. All were very highly educated, with many credits beyond a master's degree but not a doctorate. All were experienced educators with at least some formal, supervised training in administration and leadership.

Teachers

Percentages of teachers responding were: in School 1, 48%; School 2, 33% (and an additional 19% who responded to an earlier version of questionnaire); School 3, 80%; and School 4, 58%. The teachers in the four schools were not significantly different from each other on a number of demographic characteristics. Their male/female ratio was 40.2% to 59.8%. Their racial/ethnic distribution was as follows: Asian, 1.2%; black, 16.5%; Caucasian, 63.5%; Hispanic, 10.6%; and other, 5.9%; the balance, 2.3% would not say. The teachers constituted a highly educated work force. All of them had a least a bachelor's degree; 27% reported having some graduate work; 19% had a master's degree and 43% had credits beyond a masters degree.

The teachers represented a wealth of teaching experience. Only 15.4% had between 1 and 5 years of experience; 20% had 6 to 10 years; 15.4% had 11 to 15 years; 27.5% had 16 to 20 years; 11% had 21-25 years, and 11% had more than 25 years. The fact that the teachers did not differ significantly among schools in any of these demographic characteristics was not surprising, because there is a great deal of transferring among teachers from one school to another within the system. Only School 4 differed significantly in this respect. It had the highest percentage of teachers at the school for more than 5 years, 70%. The percentage of teacher who had been at School 1 more than 5 years was 32%, School 2, 36%, and School 3, only 19%.

School Differences in Student Achievement

The Boston Public Schools had instituted a program of extensive testing of students with Metropolitan Achievement Test (MAT) subtests in reading and mathematics, system-wide criterion referenced tests (CRTs) in four subject areas, as well as a writing sample. All of these measures were to have been used for analysis in the present study. However in the year of data collection for the study, 1989, the schools cut back on the quantity of testing, limiting test administration to the use of the two MAT subtests and the CRT in mathematics only. Only some schools collected and scored a writing sample, whose grade was supposed to be incorporated into the final grade in English. A new measure of high order thinking call Test of Problem Solving, or TOPS was administered with representative results from two of the four schools..

Since the criterion-referenced tests which were preferred for the present study as measures more closely aligned with the goals of instruction were no longer being used, we elected to examine teachers' final grades in academic subjects. Teacher grades are idiosyncratic, because teachers are known to use a variety of methods and criteria for assessing student performance. Grade to grade or school to school comparisons are virtually meaningless indicators of school differences. But grades have some utility in correlational analyses with test data and students' reports of rewards and punishments by the school and by teachers.

Several kinds of analyses were reported for the student achievement data. First, descriptive statistics and graphic representation of mean scores were presented for all four achievement test measures. Then two-way analyses of variance by school and by grade--were summarized. For all measures, school differences were highly significant, as were most grade differences, but so were the interaction effects for these two factors. School to school differences had to be qualified according to grade level.

School 1 showed the same pattern of performance relative to the other schools on all measures of achievement. It ranked at or near the bottom, and its students' performance declined, but not sharply, over grade levels. School 2 had consistent profiles for comparisons on each achievement measure; in each case student performance dropped precipitously from grade six to grade seven, then rose sharply in grade eight. The probable reason for this pattern was that better students left School 2 after grade six to attend the more prestigious examination schools in the system, and that lower achieving students dropped out after grade seven. School 3 showed very variable patterns on different measures of achievement. School 4 students were consistently at or near the top on all achievement measures at all grade levels but one; reading scores for their sixth grade students were lower than those of School 2.

Since tracking occurs in the schools through student assignment to special programs, it was decided that a fairer way to compare the schools was program by program. All four schools had students assigned to regular programs with no special intervention, and all four schools had special education programs. Only Schools 1 and 2 had bilingual programs, School 1 for Hispanics, and School 2 for speakers of Asian languages. Also, Schools 1 and 2 were the only ones with advanced work classes. In analyses by programs where all four schools could be compared, School 4 was consistently among the highest for which singificant differences were found, and School 1 was consistently at the bottom or among the combination of schools anchoring the low end. The pattern of highs and lows for School 3 was erratic, but most often School 3 ranked among the lower achieving schools. Students in School 2 performed higher than students in School 1 on every achievement variable in every analysis, overall, by grade, and by program.

Correlations among achievement measures showed that regardless of subject, grades correlate with grades and test scores correlate with test scores, producing moderate to high correlation coefficients ranging from .52 to .76. Scores on the CRT and the MAT in mathematics correlated .76 and .61 respectively with final grades in mathematics. Intercorrelations between reading test scores and grades were not nearly as high, ranging from .17 to a maximum of .31. The finding that test scores and final grades in reading correlate only .17 was alarming to most observers who know the stress assigned to reading scores in the placement and promotion of students in the Boston Public School system.

Students' reports of rewards and punishments accorded to them by the school and by teachers showed noteworthy correlations with test scores and with grades. Students who reported having been suspended or punished by teachers tended to have lower grades, but their test scores did not distinguish their achievement from those of students who reported no suspensions or other punishments. Students who reported being rewarded by the school or by teachers tended to have somewhat higher grades, but the correlation did not hold for test scores. Students who thought their teachers promoted competition among students actually did more poorly on tests.

Finally, since funds could not be obtained to conduct a longitudinal study in the schools, it was decided to pull from the larger sample those eighth grade students who reported attending their present school since the sixth grade. This strategy enabled investigation of the schools' influence on student achievement over time. Results from these analyses confirmed those reported earlier. School differences in achievement showed the same patterns when the analyses were limited to eighth graders who had attended their schools for three years as they did for students overall.

Beyond Basics: Assessment of Higher Order Thinking

Highly critical of the education being offered to students in middle grades in many of this country's schools, the Carneige Council on Adolescent Development charged that: "Nowhere is this failure more evident than in the development of American young adolescents' critical reasoning and higher order thinking." Under various labels, exhortations to teach for "critical thinking," "higher order cognitive functioning," and "complex problem solving," have been voiced for decades. What has changed dramatically is the way we gauge our society's productivity. No longer are we in an industrial age, but rather an age of information technology, in which many people need to make a living by thinking, and not by rote assembly. Educational goals and objectives previously reserved for the elite are now being held for the masses.

Fueling this renewed interest in teaching for higher order thinking skills is "the single most important message of modern research on the nature of thinking" (Resnick, 1987, p. 8) that the kinds of processes traditionally associated with higher order thinking are not limited to advanced levels of development. In fact the term "higher order" skills is fundamentally misleading, because it suggests that lower order skills need to come first in a very linear fashion. The growing body of research in cognitive science on the acquisition of thinking skills particularly in reading, but also mathematics, attests to this finding. Long years of drill on the "basics" before thinking and problem solving are required can no longer be justified.

Yet, higher order thinking and critical reasoning have not been taught extensively, probably because teachers are unprepared to teach them well. Pervasive use of standardized tests of basic skills as the primary vehicle for accountability no doubt contributes to the problem. Despite the reason, the outcome is well documented; schoolchildren in this country do learn large amounts of information, but they do less well on what are variously called the "higher order skills" or the metacognitive skills--how to analyze, synthesize, and evaluate that information for their own use.

Defining higher order cognitive functioning is the first problem which writers on the topic must address. Disciplinary perspectives often color their choice of terms; philosophers promote logical thinking and critical reasoning; developmental psychologists point to metacognition; educators advocate teaching study skills and real life problem solving; cognitive scientists focus on cognitive strategies and heuristics for problem solving. Resnick's definition of higher order skills provides a fine complement to so many other definitions which emphasize the component processes. Her comprehensive yet succinct definition calls attention to the attributes of the problem situation and the reactions of the thinker as well.

> *Higher order thinking involves a cluster of elaborative mental activities requiring nuanced judgement and analysis of complex situations according to multiple criteria. Higher order thinking is effortful and depends on self-regulation. The path of action or correct answers are not fully specified in advance. The thinker's task is to construct meaning and impose structure on situations rather than to expect to find them already apparent* (Resnick, 1987, p. 44).

If the definition of higher order thinking is problematic, the measurement of higher order thinking is even more so. All 50 states use nationally normed standardized tests--of basic skills, but these tests emphasize recall of declarative or procedural knowledge, not the level or quality of student's thinking. Two compelling reasons for testing thinking are first, to determine how effectively thinking is being taught, and second is to ensure that it is. Several states have mandated both the teaching and testing of higher-order cognitive skills in their schools, but the mandate outstrips the availability of appropriate measuring devices if not knowledgeable practice as well.

The present project undertook the challenge of developing an instrument to measure higher order thinking in the context of high interest, realistic problems requiring scientific reasoning. The effort began with an existing instrument, previously developed by the principal investigator with support from the National Science Foundation. The test was revised according to the recommendations made in the previous study (Shann, 1976); questions with poor item statistics were dropped; new items were created, but the general format context-dependent items centered around a realistic scenario was retained. In addition, the language was updated. Children's names and surnames were varied to reflect the predominantly black and Hispanic student enrollments in the sample schools of the present project.

The new test was named TOPS, or *Test of Problem Solving*. It contained 31 items on five scenarios: "Pets in the Classroom;" "Bike Transportation;" "The Window Sill Garden;" and "A Busy Corner;" and "A Classroom Temperature Chart." Both Spanish and Vietnamese translations of TOPS were obtained. The test was administered during students' science periods; usable returns were collected from 972 students.

Several technical aspects were studied to appraise the psychometric qualities of TOPS: item analysis, subtest analysis, reliability and validity. Item analysis included the determination of item difficulty and item discrimination levels, as well as item-total correlations using serial and point biserial methods. The difficulty levels represented a broad range, the easiest answered correctly by 91% of the students, and the most difficult answered correctly by only 23%. Discrimination indices ranged from .17 to .68.; most were moderate or better, ranging from .50 and up. Each of the five subtests showed moderate to moderately high internal consistency reliability coefficients as determined by Cronbach's alpha. The values ranging from .50 to .67 are considered quite good for 6- and 7-items subtests. Reliability for the total test as determined by Cronbach's alpha was .84.

Validity for the TOPS was established primarily through content analysis. Several opportunities were used to gather critiques of TOPS from graduate students in science and mathematics, from middle and secondary school teachers of these and other subjects, and from professors of education, psychology, and related disciplines. Construction validation was also addressed through the use of multiple regression analyses to study skill in problem solving in relation to reading comprehension, mathematics concepts, mathematics achievement, and grade level. The results clearly endorse the importance of language and not just mathematical reasoning in higher order thinking.

Teaching Behaviors Which Promote Higher Student Achievement

The major thrust of the present study has been to create and validate indicators which can be used to monitor the process of school reform and to gauge whether schools are becoming more effective in various ways. In all of this, school level rather than classroom level variables have been more salient for studying how the norms and culture of the school influence the behavior of its participants. Nonetheless, effective teaching is at the core of effective schooling. While the researchers could not engage the study of teaching through sustained, direct observation, the team decided to include items of the teacher questionnaire which requested self-reports of the frequency of use of a variety of instructional practices. Teachers responded on a scale of one to five, and their scores were transformed so that a "one" indicated "almost never," and a "five" reflected "a lot."

Factor analysis of the responses to the 16 items, as reported by 92 teachers, produced five significant factors with exceptionally clear results and clean loading. The five clusters accounted for 66.0% of the variance in the original data, and the majority of items loaded on only one of the five factors with weights in excess of .70. Factor scores were created by adding those items which weighted .50 or higher on each factor. The five teaching patterns were named as follows: Use of (1) Laboratory/Demonstration; (2) Direct Teaching (lecture and discussion with the whole class); (3) Field Trips/Class Projects; (4) Small Groups/Student Led; and (5) Workbooks/Individual Assignments.

These factor scores were used as dependent variables in the analysis of variance of teaching patterns by school. Instead of examining differences among all four schools *a priori, post hoc* designs were used in which the teachers were grouped by school according to the results of Duncan tests of the significance of mean differences in student achievement among schools, within grade level. Depending on where significant differences existed among groups of schools on the measures of student achievement, teachers of those subjects at each grade level were sorted into the same groupings of schools for the analysis of variance of teaching factor scores.

Factor 1, on the use of Laboratory/Demonstration techniques, emerged as a strong, clear first factor; but teachers who used these techniques were in the minority The factor was not significant in the analysis of any school differences in teaching patterns. However, it is important to note that the physical facilities, material resources, and class schedules which the teachers in the sample had to work with precluded all but heroic efforts to use laboratory and demonstration methods in their teaching on any regular basis.

The limited use of laboratory and demonstration techniques by science and mathematics teachers should be cause for concern. The American Association for the Advancement of Science (1989) in its landmark report, *Science for All Americans*, urges teachers to employ well-tested practices for effective teaching of science, mathematics and technology, chief among them, engaging students in active inquiry and investigation. Teachers should foster varied opportunities for interviewing, surveying, and observing behavior as well as using hand lenses, microscopes, thermometers, cameras, and other common instruments. In addition, the National Science Foundation has sponsored many studies of student inquiry which show that giving students opportunities to design experiments and manipulate science materials fosters positive effects of both a cognitive and affective nature regarding science (e.g., Shann, 1977).

The second factor, entitled "Direct Teaching," included items on "teacher lecturing to the whole class," and "teacher leading discussion among whole class," which were weighted .83 and .81 respectively. It is traditional, or conventional whole-group teaching done well. Practices associated with direct teaching include rapid presentation of new content in small steps, guided student practice with close monitoring by the teacher, and regular review with corrective feedback and instructional reinforcement. This factor differentiated the teachers of seventh grade students who were more successful than their counterparts in other schools on three of the four test measures: MAT-Mathematics, CRT-Mathematics, and TOPS, whose items reflect both science and mathematics contexts. Direct teaching was also associated with higher student TOPS scores at the sixth and eighth grade levels. Teachers of the higher achieving students reportedly used direct teaching practices more frequently than teachers of lower achieving students.

Factor 3 on the use of Field Trips/Class Projects differentiated between teachers of high versus lower achieving sixth grade students as determined by their scores on the MAT-Reading. Teachers of students in the higher scoring school reported more frequent use of supervised trips and project-centered, whole class activity.

The fourth factor, entitled "Student Led/Small Groups" represented a teaching pattern which was associated with higher student achievement at both the sixth and the eighth grade levels on the MAT-Reading and at all three grade levels on TOPS. In addition it differentiated teachers of higher versus lower achieving eighth graders on the MAT-Mathematics. Teachers who reported more frequent use of "Small Groups/Student Led" supposedly fostered activities in which students took responsibility for presentation and discussion of ideas among each other while the teacher visited the groups. This teaching pattern was associated with higher levels of student achievement in five of ten comparisons.

The final factor which emerged from factor analysis of self-reported teaching behaviors was the use of "Workbooks/Individual Assignments." This factor was associated with differences in student achievement in four out of ten possible comparisons, but in three out of four of these significant findings, students who had more class time spent on workbook and individual assignments had significantly *lower* scores than their counterparts whose teachers did not use this pattern so frequently. The one exception in which more frequent use of workbooks and individual assignments favored the highest achieving school was found for eighth graders from School 3 scoring highest on the CRT-Mathematics, whose teachers were known to spend considerable time teaching for the test with practice on examination items.

Sixth grade and seventh grade students who performed less well on the MAT-Mathematics, and eighth grade students who scored significantly lower on the MAT-Reading all had teachers in those subject areas who reported more frequent use of workbooks and individual assignments than higher achieving students, whose teachers used significantly less of this pattern of teaching. Eighth grade students showed mixed results on the CRT-Mathematics in relation to their teachers' reported use of workbooks and individual assignments; it appeared that corresponding emphasis on direct teaching in conjunction with practice in workbooks may have produced the superior results for classes at one school, but over reliance on workbooks without corresponding use of direct teaching was associated with the poorest performance on the CRT-Mathematics.

If these striking results are indeed valid, teachers should be advised to limit students' use of workbooks and individual assignments during class time. Instead they should use teaching patterns which promote higher student engagement, particularly the kinds of activities suggested by Factor 4, which are reflected in cooperative learning. Workbook exercises and individual assignments allow students to look like they are busy at work,when in fact they may not be. These assignments may be useful for some purposes as homework assignments. Even then, students should receive written comments on what they do (Walberg, 1990).

The analysis of teaching patterns associated with higher levels of student achievement was accomplished indirectly. After school differences in student performance on each of four achievement tests were observed to be significant at every grade level, Duncan tests were used to specify which school means were different from other school means. Sorting teachers into the same clusters of schools which differentiated students according to the achievement data, we conducted on analysis of their teaching patterns as measured by the factor scores of self-reported teaching practices.

Methodological purists would caution that aggregation effects may account for any association between differences in student achievement and differences in teaching patterns, on the argument that higher achieving students and better qualified teachers would assemble at the same schools, more often those in advantaged suburbs than those in disadvantaged urban areas. While this may be a valid criticism of studies which suggest causal links between higher student achievement and higher teacher qualifications (Weaver, 1986), it is not a valid argument for the present study. Two-thirds of the teachers reported earning advanced degrees, suggesting that there is little variability in their achievement levels, and all were teaching students who came from disadvantaged urban communities. However, if the use of actual teaching behaviors does correlate with student achievement, the finding has important implications for teacher training, staff development and classroom practice.

The inquiry about classroom teaching practices was secondary to the main thrust of the study; the measures were self-reports, and the design was weak; it did not make strong connections between student achievement and actual classroom teaching practices of those students' teachers. Still, strong, clear factors emerged which distinguished teaching patterns used by more effective versus less effective teachers, as determined by student achievement.

Given that Factor 1 included Laboratory/Demonstration activities which could not be used realistically in the schools, differences in the remaining *four* teaching patterns were being compared, paralleling significant differences among schools on *three* achievement tests, at each of *three* grade levels, making 36 possible differences. Since analysis with the fourth measure of student achievement (TOPS) produced no singificant schoolXgrade interaction effect, differences in the *four* teaching patterns were not qualified by grade. In all then, there were 40 possible differences (36 + 4) which might have been found in the analyses of teaching behaviors, and 13 were found to be significant at approximately the .05 level or beyond. Fully one-third were statistically significant, whereas only about 5%--fewer than three--would have have been significant by chance alone.

These findings on teacher effectiveness suggest important choices for staff development, scheduling, and coaching--all of which are school level, rather than classroom level decisions, with immediate implications for strategies for school improvement.

The Students and What They Value

If economically disadvantaged, largely minority youth who attend urban middle schools hold value systems like those reported by the vast majority of students in the present study, there is reason to be optimistic about their futures. Teachers complain: "Just give me students who want to learn!" If responsive, effective education can be made available to these students, it's not too late, because these students want to be in school, they want to learn, and they recognize the crucial importance of education to the quality of their lives in the future.

Very substantial percentages of the students use the highest point on the rating scale to indicate the importance they place on family (92%), future education (83%), future job (83%), and getting good grades (79%). The basic human need of feeling safe is also deemed very important (68%), but the importance placed on friends, while still very substantial (42% choosing very important), is not as pronounced as the importance placed on family and education. The distribution of responses for the more hedonistic value of being rich flattens considerably; having fun and having a job now are also of relatively lesser importance.

Tests of significance of differences in these values according to gender as well as race/ethnicity produce several significant differences. While the gender differences favoring the more positive outlook of females correspond with the stereotypes reported for a sample of this socioeconomic level, the differences by race/ethnicity hold some surprises and do not conform to conventional stereotypes. Differences by grade are not significant, and differences by school correspond with the racial and gender differences which their disproportionate enrollments represent.

Teachers recognize the importance of teaching values and serving as role models to their students. While these responsibilities are not actively high priorities for the teachers, they report their schools (and by implication themselves) remiss in addressing this area of student needs satisfactorily. The discrepancy noted between success versus priority assigned to this area ranks fifth among 31 areas rated by the teachers; teachers appear to be reporting that they recognize the need to do more in schools about moral education of their early adolescent students.

The evidence indicates that students hold very positive traditional value systems; they want teachers to "teach us right from wrong"; and teachers concur with this need. The emergence of a very small minority in these schools whose values suggest they have no dream for the future but only the benefits of the present is disturbing. These youths who might be part of what has been termed an *underclass*, tend to be male, not female, and disproportionately white; to a lesser extent, disproportionate to the enrollments, they are black, but not Asian, and not Hispanic.

How Students Spend Their Time Outside of School

The four urban middle schools in our sample are in session for students exactly six hours each day. One with a delayed opening begins at 8:30 a.m. and ends at 2:30; the three others begin at 7:40 a.m. and send students home at 1:40 p.m. According to school personnel, many of these students go home to empty houses, where they watch TV and care for younger siblings who attend the elementary grades. Our data confirm the extent of television watching. Fully 90% watch for at least an hour, almost 70% watch TV for two hours or more, 30% for four hours or more after school. These viewing rates exceed what was reported nationally for high school seniors in the class of 1985 (U.S. DOE-OERI, 1988. p. 109). Approximately 75% of high school males and 69% of the females in that graduating class reported watching TV after school. It was their most common daily activity.

The figures suggest that those who don't go home and watch television go out with friends after school, or simply "hang out." Almost 70% of the sample reported going out with friends for an hour or more and a quarter (24.6%) spent 4 or more hours this way. "Hanging out" occupied more than half (54.5%) the students for an hour or more each day, and for 20.8% it consumed four or more hours a day.

Fully one-third spent no time reading after school, but 44.2% claimed to read for one hour, few more than that. Half of the students reported spending an hour on homework after school, another 26.3% spend two hours; 16.7% spend three hours or more, but only 6.7% claimed to do none. The low percentages of time spent reading probably reflects choice but also may reflect lack of opportunity, the scarcity of reading material in the home. Three of the four schools reported that teachers are reluctant to send students home with text books. There are not enough to go around, and the teachers fear the short supply will dwindle further. Instead, they prepare students with worksheets or assignments in their notebooks.

Students have very few choices available to them. More than three quarters do not go to after school programs, mostly because they are not available. Even fewer take lessons, for example in dancing, music, or language, because lessons are beyond the means of most of these families. Most of the children leave school by 1:40

p.m., and they have little else to do but watch television, see friends, and hang out, for four or more hours, until their parents get home.

Weekends present a similar picture of unstructured social activity with even more television viewing and considerably less homework. There are no Saturday programs at their schools for these students. Even playing sports occupies very little time for most of the students; 40% report no time during the week on sports and 41% spend no time playing sports on the weekend. Slightly more than a quarter play sports on the weekend for three hours or more; considerably more students prefer to just hang out. Opportunities to play sports may be very limited; playing fields other than hardtop playgrounds in disrepair are not in evidence in the areas which these school serve.

Playing sports preempts television, video games, and hanging out in terms of popularity as a summer activity. It may be that pools, rinks, and playing fields supervised by the Metropolitan District Commission in the areas where these students live are available during the summer, but not the school year. The data overall indicate that the student's choice on how to spend free time is very limited.

Volunteer work is something that 26.5% of the total sample has tried. But the involvement drops off significantly as students advance to higher grade levels. Many educators and other concerned citizens point out that volunteer work is important as a socially desirable and influential activity in its own sake, quite apart from its possible influence on student achievement. If this is so, more opportunities ought to be made available to students to engage in such work. The picture which emerges from the data overall is that students have few choices, and little structure to guide productive use of their time.

Extending the school day, week, or year to include more of the same things which presently go on in schools with disappointing results is not the answer. But purposeful, structured activities with appropriate resources and adult supervision ought to be made available to these students.

Schools and school systems wishing to survey their students on how they spend their time should consider using different response formats for some of the items. After school activities which are likely to occur daily may be retained in the same format as that shown in item 11--doing chores, homework, watching TV, going out with friends, reading, playing sports, hanging out. Babysitting should be added to the list, perhaps in two items--for younger brothers and sisters, and for another family. Certain after school activities may not occur daily, like working, going to an after school program, and taking lessons. These items should be separated from the others and their response format changed to "how many times each week", " for how long." Despite multiple pilot tests of the instrument, these points of confusion did not surface until the final administration of the instrument.

Prosocial and Antisocial Behaviors in the Schools

Students' prosocial and antisocial behaviors were used as an index of school climate. These behaviors shape the social system of the school and reflect its culture, including its values and norms for permissible behavior. To assess these behaviors, parallel sets of items were used in the student and teacher questionnaires requesting their estimates of the frequency of prosocial and antisocial behaviors exhibited by students in their schools. These perceptual data were used as direct indicators of normative climate for each school. Observations during site visits by university-based members of the research team were used to corroborate the perceptual data from student and teacher groups.

Students and teachers were generally consistent in their assessments of students' prosocial behaviors in the schools. Differences which occurred could be attributed to differences in the wording of the items, after changes were made in the student questionnaire to simplify the reading level. One difference between perceptions of students versus teachers occurred on identically worded items--students reported that they showed more respect for teachers than the teachers thought they did. Teachers were consistently more negative in their assessments of their students' antisocial behavior; students did not see themselves in such an unfavorable light.

Results of previous studies about the consistency of perception of school climate among groups of respondents have been mixed. Some researchers have found that students, teachers, and administrators differ among themselves, but within one group are consistent (Ellet et al., 1977, Ellet & Walberg, 1979). Other researchers report that student and teacher measures are associated with more objective measures of school climate, indicating that both groups perceive the school's climate in the same way (Davis, 1963; Perkins, 1976). Results from the present study suggest that both findings may be valid; it depends on the target of the perception, and precisely how the perception is measured. Teachers and students were similar in their assessment of most prosocial behaviors. They were somewhat more discrepant in how they rated antisocial behaviors; most likely, teachers were more sensitive to, more offended by, and/or more threatened by, their students' antisocial behaviors than the students were by their own peers' behavior.

Previous studies on perception of climate also suggest that variance may be a function of individual differences as well as organizational differences (Hoover, 1978; Moos, 1979). If Herr (1965) was correct, people will generalize from their own experience and environmental press, and differ in their perceptions according to sex, race, SES, age, and grade. These are largely unalterable variables. The present study examined students' perceptions of behaviors with a four-way ANOVA design which enabled investigation of effects by sex, race, grade, but also school. These analyses produced a host of statistically significant results.

Three gender differences were highly significant at $p < .0001$. One of these was significant even well beyond that level. By a substantial margin, females were far more likely than males to report that students in their schools engaged in behaviors which involved helping others directly. Also by a substantial margin they were more likely than males to report helping with tasks, probably because the females themselves engage more frequently in the helping behaviors. The females were also significantly more likely than males to report antisocial behaviors in their midst, arguably because these behaviors are more objectionable to the females.

Four differences attributable to race/ethnicity were highly significant at $p < .0001$. Three of these separated the Asians from all other racial/ethic groups. Asians were far less likely to report antisocial behaviors in their schools, including those which were classified as relatively lesser infractions as well as those called major transgressions. It was suggested that Asians may be acculturated to ignore such violations, preferring to "see no evil, hear no evil," or they not be present when these negative behaviors take place. Several teachers and administrators in the schools have noted in conversation and in written remarks on questionnaires that the Asians oftentimes "keep to themselves." Asians were far more likely than all other racial/ethnic groups to report showing respect, a finding which is consistent with this positive stereotype for Asian cultures. Another highly significant difference by race separated the Hispanic and Asians from the others in their reports of helping others directly. Finally whites were less likely than Hispanics to report helping with tasks.

Grade differences were statistically significant in the analysis of all six factor scores. In every case, the sixth graders fell toward the more socially desirably position, reporting fewer antisocial behaviors and more prosocial behaviors taking place than seventh and eighth graders. Again, if perception is a valid indicator of objective climate, and if climate conditions how people behave, then the sixth graders are behaving in more socially desirable ways than students in the next higher grades. The grade differences were especially significant for the prosocial behaviors, indicating that the younger students probably do have a more positive outlook and are more disposed to act in prosocial ways by helping others, helping with tasks, getting along, making friends, and showing respect. Here is where interventions need to be targeted--the sixth grade--in order to sustain these positive behaviors.

Epstein, in personal communication, (1990) commented that these findings regarding grade differences are especially significant, because most previous studies which point to negative changes between sixth and seventh grades compared students who were not in the same schools--sixth graders in K-6 or 4-6 configurations of grades, versus seventh graders in junior high schools or 7-12 schools. Even in longitudinal studies, there was concern that the school might account for the difference as much as the age. The present study conducted in middle schools which include grades 6, 7, and 8 suggests that differences can be attributable to both grade and school (as well as sex and race).

Differences among schools were significant in the analysis of all of the prosocial and antisocial behavior factors except one. Highly significant differences in both lesser and more serious antisocial behaviors separated the academically higher achieving schools (Schools 2 and 4) from the two which were less successful academically. Students in the latter two schools (Schools 1 and 3) reported much higher frequencies of antisocial behaviors in their midst. But there was another significant separation between schools on these variables as well, one which merits further attention. While the two high academic schools were significantly lower in antisocial behaviors than the other two schools, they were significantly different from each other as well. The school which ranked second on all achievement measures (School 2) when the more appropriate comparisons were made by program (bilingual, special education, advanced, etc.) is the school which is lowest by far in antisocial behaviors. However, it is also lowest when it comes to the measure of friendship and racial/general harmony among students. To the outside observer, this school appeared to be run "like a marine drill camp," placing too high a priority on law and order. Its students were given few social freedoms in school--like no talking at lunch, single file changes of class, segregated seating by sex in the cafeteria--and this policy may have taken its toll on the prosocial behaviors which involve nurturing.

Significant differences in prosocial behaviors among schools consistently favored School 4, the top ranked academically. Its students' means for reported frequencies were always on the positive side of any significant differences. The other schools had mixed results. School 3, the smallest and probably poorest school in terms of its students' level of disadvantage, scored significantly lower than Schools 2, 1, and 4 (ranked from low to high) in the students' perception of the frequencies of behaviors which involve helping others directly. This difference may reflect a serious deficit among the students in School 3 as much as objectively higher frequencies of helping behaviors in the other schools.

Students in Schools 2 and 1 were significantly lower than students in School 4 in their reports of getting along with each other and making friendships across racial and ethnic groups. Independent observations also suggested that School 4 was a friendlier, more harmonious place to be. It is especially noteworthy that this top ranked school academically appeared to strike a balance in achieving an orderly but also a friendly environment. On the final measure of prosocial behavior, showing respect, students in Schools 3 and 1 reported significantly lower frequencies of such behaviors than students in Schools 4 and 2. This highly significant difference favored the academically higher achieving schools over the lower achieving schools.

The Value of School Climate Research

While there is general agreement among researchers, reviewers, and practitioners as to the importance of school climate for school effectiveness, there has been disagreement on whether it is worth studying. Critics have contested that school climate is neither measurable (Rutter, et al., 1979; McPartland & Epstein, 1975) nor manipulable (Haller & Strike, 1979). Results from the foregoing analyses suggest otherwise. Indicators of prosocial and antisocial student behaviors which were used in the present study produced results which were consistent, readily interpretable, and cross validated by conversations and formal interviews with participant reviewers and by independent observations. Most importantly, the indicators revealed important and meaningful differences among schools, as well as genders, racial/ethnic groups and grade levels.

The failure of earlier studies to find significant school effects may have been the result of inadequate measurement, too few variables, or the wrong variables. Best known of these earlier studies, the Coleman Report (Coleman et al., 1966) inquired about who (persons and their attributes like SES and race) and what (classrooms, common room, special function facilities, books, etc.) were in the building, rather than how participants used resources or how they related to one another. In Rutter's opinion (1980), these were grave omissions of previous studies which "failed to take into account anything about the internal life of a school: its attitudes, values, mores or qualities as a social organization. It is just these social, rather than physical variables that do account for much of the variation between schools.

Critics of the value of school climate research considered it a burden to policymakers who would prefer to know how to manipulate school climate to effect positive outcomes. As Haller and Strike complained: "It is unclear, for example, who (much less how) an administrator or policy-maker might go about changing an organization's climate" (1979, p. 236). While it was not an experimental study, the present study has yielded numerous school differences on climate variables which suggest important implications for practice.

It would appear from the present study of urban middle schools that high achieving schools must have orderly environments unencumbered by antisocial behaviors. However this is not enough. To maximize potential, the schools should also have an ethic of caring, habits of helping others, getting along and making friendships across racial and ethnic groups. These prosocial behaviors distinguished between the first and second ranked schools, the top ranked school appearing to have both the necessary and the sufficient conditions. The lower achieving schools had neither.

Many schools do know how to maintain law and order, but as Firestone and his colleagues (1990) have observed, "while order and high expectations are important, an expanded view of school effectiveness must be taken if we are to serve at-risk students well....When a get tough orientation is overemphasized, safety is too often purchased at the price of personal freedom and self respect."

How Teachers and Principals Promote School Climate

Teachers exert pervasive influence on students' behavior. Their realm of influence includes not only academic achievement, but also social norms and values. The mechanisms by which they do this include setting expectations, providing models of behavior, and giving students feedback on what they do. The central task for schools and for students in particular is to engage students, so that they put forth serious effort and develop a commitment to mastering schoolwork. Social psychological dimensions of this task are not only instrumental to student learning but also important ends in their own right, such as showing respect for others, affiliating with others and sharing commitments.

The social psychological dimension of schools appears to be particularly important for students at risk for school failure or dropout. Rather than viewing these students as ones with a disadvantage or deficit, it may be more constructive to note their higher sensitivity to positive school environments. Students at risk of school failure may be the very ones who stand to gain the most from the social capital which the schools need to provide, since families are no longer well equipped to do so. Such vulnerable students may be even more responsive to positive social and educational environments than students whose homes extend the achievement and value orientation of their schools.

The importance of a safe, orderly environment to a positive school climate has been recognized for some time; the influence of high expectations on student achievement has been known even longer. What is more recent, but perhaps just as important for students at risk, is careful documentation of the importance of a caring environment. An ethic of caring promotes respect, affiliation and commitment among the adults and students in the school. These effects are mutually reinforcing for students and teachers; but if one side is low, it will depress the other. Factors contributing to this cycle of commitment include not only respect and affiliation, but also relevance, administrative support for teachers, fair and consistent treatment of students according to clear rules, and having a sense of control over one's work. Several of these factors need to be orchestrated on a school-wide level by the principal.

Indicators of teacher behaviors as well as the influence of teachers and principals on teachers and students were developed as part of the present study. Results of these measures were corroborated by interview and observation and shown to be related to the academic achievement rankings and prosocial behaviors in the schools. Teachers' commitment to students was attested in teachers' assignment of #1 ranking to the importance of teacher/student relationships to job satisfaction, a finding which was overwhelmingly endorsed in interviews. Both students and their teachers in all four of the sample schools serving predominantly minority youth expressed shared responsibility for student achievement. The primacy of the academic mission of the school was recognized by students in both higher and lower achieving schools.

What differentiated higher and lower achieving schools was an ethic of caring, a sense of cooperation among students, collegiality among teachers, and a mutual commitment between students and teachers. Principals were instrumental in making this possible, by exhibiting a strong sense of leadership in delicate balance with the sharing of power. Teachers felt support from each other and from principals; they had common planning time and a place for meetings. Students in schools whose teachers exhibited collegial behavior and affiliation toward others in the building were more likely to cooperate with each other. In turn, more cooperative rather than competitive teaching patterns, were associated with higher levels of student achievement.

Competition to do better than other students on tests and grades was negatively associated with achievement measures. Of particular note, this factor provided a clear separation between the two higher achieving schools. The school whose achievement was highest overall, and highest in comparisons within regular and special education programs--on every measure of achievement--had no advanced work classes, nor did it have the Asian bilingual program, both of which favored the second school. Moreover, the highest achieving school had a physical facility which was not nearly as pleasant and accommodating as the second ranked school. Both drew virtually the same size enrollments from very similar, adjacent communities. If anything, the second school could be said to be more advantaged, yet it was significantly outperformed by the first.

An ethic of caring made the difference. It permeated all of the data we collected--from students, teachers, and principals. The difference was not at all obvious at first; the schools felt different; the social interactions were different, but it was not until months after the study was engaged that a clearer picture emerged. When this qualitative picture was corroborated among several members of the research team who had visited the schools several times, the quantitative results of both student and teacher questionnaires only confirmed the results. The findings are significant not only for what they say about factors affecting student achievement, but especially because they are alterable variables amenable to change by helping principals to exercise effective leadership with the sharing of power, and by helping teachers to employ effective teaching practices with an ethic of caring.

Some Very Important Qualities in Teachers

While it is important to make the profession attractive to bright, talented, competent people, focusing efforts only on teacher preparation and licensure will be insufficient. The United States has the best educated teaching force it is likely to have for years to come, simply because a lot of teachers presently in the force had no real options when they made their career decisions. Now, equality of access to occupations means that society can no longer trap smart young blacks and women in teaching. The senior members of the teaching force will not be affected by changes in licensure, and they are still many years from retirement. Staff development will be crucial to promoting and sustaining teacher competence for both new and veteran teachers, but up-to-date knowledge of subject matter and pedagogy should not be the only concerns.

If academic excellence becomes the over-riding concern in teacher education, selection, and licensure, education may stand to repeat the mistake of medicine in its single-minded pursuit of highly qualified applicants who test well and get good grades. By highly respected accounts, schools of medicine had managed to select and train the compassion right out of its medical students, undoing the very quality we want to see in doctors who treat ourselves and our families. Since then, medical education has developed many new programs to thwart the negative effects of severe competition for what can be more readily quantified--test scores and grades.

Paradigms for research which have changed our thinking about how to study effective teaching and schooling call attention to what actions teachers and others take to engage students and promote achievement, rather than what passive characteristics or credentials the teachers possess. But rather than being "passive traits," the value systems of teachers may be crucial for the central tasks of schools, although values alone are not sufficient. This hypothesis would be consistent with a major finding from the present study: what differentiates the performance of the highest achieving school from one which outwardly had more advantages was an ethic of caring. Both had high emphasis on achievement, but the more successful school was seen to be more collegial and cooperative by its teachers and by its students who also noted higher rates of prosocial behaviors in their midst.

Asked what they liked most about teaching in their schools, teachers named first and foremost their students. This finding was corroborated by results from the teacher questionnaire. One section contained 14 issues, presented in pairs, which inquired how important were various aspects of their job to job satisfaction, and how satisfied teachers were on these issues. Teachers felt that teacher/pupil relationships were most important, and reportedly they were more satisfied with this aspect than any other. Job security was the second most important concern, but among the least satisfied. Layoff notices have become a rite of spring which has taken on racial and ethnic overtones, since minority quotas continue to displace seniority as the basis for retention. Teacher performance is not considered in the dismissal process.

Teacher ratings of importance averaged toward the high end of the scale, between the highest and second highest score points for all but one of the 14 aspects of their jobs which were included on the questionnaire. The exception was the issue of teacher evaluation procedures, which teachers in School 4 rated significantly less important than teachers in the other three schools. Interviews with teachers and administrators in School 4 suggested a mindset among those teachers that they knew they were competent; if they weren't they wouldn't be there. The principal would somehow have managed to get rid of them.

Average ratings for teacher satisfaction with various aspects of their job were consistently lower than they were for importance of those issues, but if the midpoint of the scale represents neutrality, then teachers on average reportedly were reasonably satisfied about most aspects of their jobs. Significant differences among teachers in different schools were found for two aspects, teacher/teacher relationships and the school's curricula. On collegial relationships, teachers in School 4 reported the more positive position than teachers in Schools 1 and 3; on the school's curricula, the teachers in School 3 were significantly less satisfied than teachers in the other three schools.

Discrepancy scores were computed by subtracting satisfaction scores from importance scores for each teacher in order to provide a gauge on the saliency of the issues as targets for change. The discrepancy between job security and job satisfaction was second largest behind parent/teacher relationships. The discrepancy between the importance and satisfaction regarding the issue of salary ranked last out of fourteen issues. Simply stated, the issue of salary was not an issue for these teachers in comparison to other, more pressing needs. Teachers reflected third and fourth highest levels of concern over the level of student achievement and their own participation in decision making. School principals may well be advised to act on the fourth-ranked concern by involving teachers in planning strategies for responding to the top three issues: parent/teacher relationships, job security, and student achievement.

Empowering Teachers Without Loosing Sight of Students

After several years of sustained attention to the need to improve our nation's schools, the school reform movement is at a crossroads. So too is the future of the teaching profession in America. Either legislated prescriptions intended to raise standards will continue to strip teachers of opportunities to exercise seasoned judgement and professional discretion, or teachers will be empowered to engage in instructional leadership in schools which provide collegial work environments and opportunities to share in decision making.

The first wave of reform set out to raise standards, increase accountability, and promote rigor. The second wave is more enlightened, marked by a different and exciting agenda: participatory school-based management; cooperative, collegial school environments for both students and staff; flexible use of time; high expectations alongside an ethic of caring; curricula that focus on students' understanding, not only of what, but also their understanding of why and how; as well as an emphasis on higher-order thinking and complex problem solving for all students. This demanding agenda requires that teachers assume positions of instructional leadership in a work environment that treats them as professionals. Administrators cannot do it alone.

Teachers as professionals must be central to the new reform efforts. Staff development will be part of the solution, but it must be sustained and focus on content and programs which have solid grounding in research. Extended training and followup in a small number of programs of proven effectiveness must prevail over faddism, political pressures, and reigning ideologies. Otherwise we will see the pendulum swings of recurring reforms which only tinker with the system but fail to change in fundamental ways the way schools operate.

Participatory decision making through school based management is a strategy for reform which can enable structural changes to reach the student. Principals *and teachers* need to *participate in decisions* to affect what teachers do in the classroom. This conception of school-based management requires a structure for decision making in which teachers identify problems, propose tentative solutions, and identify the resources needed to try them out. Team leaders, cluster coordinators, department heads, and assistant principals might serve as the advocates and negotiators for their teams of teachers. Principals must make the decisions on the acquisition and allocation of resources, while serving as the school's advocate to upper echelons of the system.

This participatory role for teachers in decision making at the site level requires that administrators recognize teachers as professionals who are trained to cope with uncertainty (Backarach & Conley, 1986) and who make scores of nontrivial decisions in the space of a single lesson (Berliner, 1984). Administrators must view teachers not as assembly line workers following fixed procedures, but as decision makers and problem solvers--true professionals who continuously refine and adapt their pedagogical knowledge to new situations and changing needs of students.

There has been considerable debate over which kinds of decisions teachers teachers want to influence. Some researchers have found it striking how much teachers lack interest in major policy decisions, like budget, curriculum, and new programs. Research indicates that teachers want the greatest influence over operational classroom decisions including what to teach, how to teach and what textbooks to use. It would seem that day-to-day decisions rather than strategic choices are most important, but salience may be a factor; teachers are usually more concerned about budgets when they do not get the supplies they need. Reportedly the decisions in which teachers feel most deprived are those which affect the boundary between the classroom and the school, which constrain teachers' decision making.

The debate over which decisions teachers want to make and ought to make may stem from different points of view on what constitutes their professional identity and expertise. Whatever the decisions which they are empowered to make, to do so effectively teachers need good information, not only from their own professional insights and considerable experience in their schools, but from research, including participatory research. It is time for school reforms which promote more professional work environments for teachers including greater participation in decision making and involvement in research which can be used to inform the issues for decision making.

The present study developed many indicators which can be used to gauge school effectiveness, including product measures or outcomes. But it is also important that educators examine carefully the inputs and the processes of schooling, in order to make informed decisions about which reforms to undertake and how to proceed. The study considered demographic characteristics of students and teachers, what values students hold, and what is important and satisfying to teachers, which might be considered indicators of inputs. We also developed process indicators which might be used to guide restructuring, help participants establish priorities, and identify strategies for change.

The items in Section 14 of the Teacher Questionnaire were developed to asses teachers' perceptions of how much say have in 25 areas of influence. The distributions of percentages of teachers choosing each option to each item show striking skewness; either teachers feel they have a lot of say over a given issue or almost none. Very few distributions reflect a middle range of influence. Not surprisingly, teachers say they have greatest control over their own teaching methods and somewhat lesser influence over what informal tests are given, what supplementary materials they use, and what student grades are assigned. Means indicating a moderate level of influence are reported for the items on what instructional objectives are set, what content they teach, and whether students are promoted. More than half of the areas (14 out of 25) received mean ratings by teachers which were in excess of 4.0 on a five point scale, where a "5" meant no influence, indicating the teachers feel they have very little if any say about many areas related to their work.

Section 18 on the Teacher Questionnaire was designed to assist school personnel in assessing their accomplishments and in setting priorities for meeting student needs. It was a long set of items given in two parts. Teachers were asked to indicate for each of 31 areas first, how successful their school has been with regard to meeting student needs, and second, what priority their school should place on that area. Teachers were instructed to leave the item blank if they had no opinion. Discrepancy scores were calculated by subtracting teacher ratings for the priority they would assign to a given item from their estimate of the success which their school had achieved. The discrepancy scores were designed to indicate the salience or importance of each area of need.

If discrepancy scores are indicative of the magnitude of need, then teachers feel that involving parents in student learning should receive foremost attention. Teachers made the same assessment in their response to items from another section of the questionnaire on what is important to them. Teaching social courtesies also stands out as an area requiring attention from the teachers' point of view, regardless of the school. Teaching thinking skills ranked third in terms of what the teachers think schools are doing well versus what the priorities should be, and just barely ahead of teaching basic literacy skills. The difference in these ranks is not significant. Teachers feel that both are areas of great need in their schools, and indeed, their judgements are corroborated by much independent evidence. It is also important to note that the teaching of moral and ethical values drew an assessment of great importance to teachers. While it is an issue which ranks low in terms of how successful they are and also what the priority should be for that area, the discrepancy between the estimates of success and priority places it close to the top as an area in need of the school's attention.

School differences in the teachers' estimates of success their schools have achieved in various areas, the priorities which should be assigned, and the discrepancy values are highlighted. Especially striking is the number of areas on which schools differ significantly in the rates of success reported by their teachers. It is also noteworthy that for the most part, these teachers' judgements correspond closely with other independent assessments about their schools. Oftentimes the areas in which schools differed significantly in their rates of success did not reflect significantly different discrepancy scores, because teachers did not uniformly hold high priorities for those items. The concept of discrepancy proved to be useful for helping teachers choose problems to work on in their own schools.

Once an organizational structure is in place which will permit teacher participation in decision making, the sets of items from the teacher questionnaire can be used to address the strategic question about *which decisions* teachers will be involved in making. The broad areas in which teachers want to play larger roles in decision making can be determined first by the items which inquire what say they do have over various areas versus what say they think they ought to have over those issues. Additional pairs of items can be used to assess what is most important to teachers in relation to their work versus what is most satisfying. Those issues about which there is greatest discrepancy between importance and satisfaction might be targeted for special attention. Then the specific content of the issues might be set according to the teachers' responses to questions about areas of success and priority for their schools, modeled after the items shown in Section 18. The analysis of the data need be no more sophisticated than calculating means for each item and establishing their rank order. The ranks should not be used to mask what can be slight differences between adjacent means; rather, the extreme ranks are most telling about the school's high points and sore spots.

It is also important to note two dramatically different kinds of experiences which we encountered in reporting the results to practitioners in the system. When we addressed teachers and principals with summaries of the student and teacher questionnaire results *for their own schools* they seemed fascinated with the results, studying them carefully, discussing them earnestly, pausing to contemplate, then going back for more. This was uniformly the case for group discussions with teachers and individual meetings with principals. However, when we presented some of the same data *anonymously* to Directors of Instruction for all middle schools in the system, identifying the data only as a summary from four of the system's middle schools, their response took other forms, from posturing ("Oh, well that wouldn't be true for the XYZ School"), to disinterest ("This has nothing to do with my school"), to mild interest ("I think it would be interesting to see how our school would respond").

Participatory School Based Management

The key issue in the success of school-based management for school reform is not *decentralization* but *participation* in decision making by the school's professional staff. Principals must share power with teachers. New forms of participation in decision making will require clarification of the basic tasks of administrators and teachers in this context. Debunking the myth of the "Great Principal" who surfaced in the literature from the first wave of school reform may be especially appropriate at this time.

Rallis and Highsmith make a compelling case that "the first realistic step in school improvement is to recognize that school management and instructional leadership are two different tasks that cannot be performed well by a single individual" (1986, p. 300). Principals must be managers first. They are responsible for the acquisition and allocation of a school's resources, and for establishing and reinforcing a climate that is conducive to learning, one that is free of disciplinary problems and embodies high expectations for student achievement. Some principals may be able to take on instructional leadership as well, but most do not have the time or resources to do both.

Schools would be best advised to look within their own teaching ranks for instructional leaders who have the requisite breadth and depth of content, pedagogical and curricular knowledge, mediated by practical experience and sensitivity to human needs. Experienced master teachers within the schools should be identified and given the responsibility and accountability for working with their colleagues in meaningful systems of professional decision making. But, even those with the necessary qualities and experience to be an instructional leader cannot be effective unless someone else is working full-time to manage the school. It may be that the "Great Principal" is one who is willing to share power with teachers, to enable them, so that teachers can empower themselves and minister to students more effectively.

Significance

The middle school has been largely ignored in the school effectiveness literature. On several counts, it can be said that here is the level of greatest need for inquiry on effective school practices. The curriculum at this level nationally has been termed a "wasteland" by responsible educators. Moreover, it can be argued, here is where the trouble begins. Academically, basic skills plateau or decline, as attested by recent reports of test scores released for the Boston Public Schools. Nationally, NAEP data mirror the same pattern, with declines in criterion-referenced performance measures beginning at the fourth-grade level. But the risks are pervasive; as Dr. David A. Hamburg noted in his recent address for the Carnegie Commission, early adolescence, the age of most middle schoolers, is an age of particular vulnerability, for drop out, pregnancy, drug and alcohol abuse, suicide, and delinquency.

Schools can and do make a difference. Students at greatest risk for failure in life are those who drop out of school, who do not achieve basic functional literacy skills. Using appropriately designed studies and sensitive indicators of what schools actually try to do, evidence can be obtained to document the successes achieved in effective schools. The research can also be used to establish the linkages between effective practices and the desired outcomes, and to guide efforts to make other schools more effective. It is this kind of evidence which can be most persuasive in seeking greater public and corporate support for school improvement.

REFERENCES

Airasian, P. (1988a). Measurement driven instruction: A closer look. *Educational Measurement, 7*(4), 6-11.

Airasian, P. (1988b). Symbolic validation: The case of state-mandated, high-stakes testing. *Educational Evaluation and Policy Analysis, 10*(4), 301-314.

American Association for the Advancement of Science. (1989). *Science for All Americans.: A project 2061 report on literacy goals in science, mathematics, and technology*. Washington, DC: Author.

Anderson, C.S. (1982). The Search for school climate: A review of the research. *Review of Educational Research, 52*(3), 368-420.

Anderson, Marcham & Nunn. (1944). An experiment in teaching certain skills of critical thinking. *Journal of Educational Research, 38*(4), 241-251.

Averch. H.A., Carroll, S.J., Donaldson, T.S., Kielsing, H.J., & Pincus, J. (1974). *How effective is schooling? A critical review and synthesis of research findings.* Englewood Cliffs, NJ: Educational Technology.

Bacharach, S.B., & Conley, S.C. (1989). Uncertainty and decision making in teaching: Implications for managing line professionals. In T.J. Sergiovanni & J.H. Moore, (Eds.), *Schooling for tomorrow: Directing reforms to issues that count* Boston: Allyn & Bacon, 311-329.

Bacharach, S.B., Bauer, S., & Conley, S.C. (1986). Organizational analysis of stress: The case of secondary and elementary schools. *Journal of Work and Occupations, 13,* 7-32.

Bailey, M. (1979). The art of positive principalship. *Momentum, 10,* 46-47.

Ballinger, C. (1988). Rethinking the school calendar. *Educational Leadership, 45*(5), 57-61.

Bandura, A. B. (1964). The Stormy Decade: Fact or Fiction? *Psychology in the School, I,* 223-231.

Bandura, A. & Walters, R.H. (1959) *Adolescent aggression.* New York: Ronald Press.

Barker , R.G. (1963). On the nature of the environment. *Journal of Social Issues. 19*(4), 17-38.

Barth, R.S. (1990). A personal vision of a good school. *Phi Delta Kappan, 71*(7),512-516.

Bealer, R.C., Willits, F.K., & Maida, P.R. (1964) The rebellious youth subculture--A myth. *Children, II,* 43-48.

Bereiter, C. (1973). *Must we educate?* Englewood Cliffs, NJ: Prentice-Hall.

Bereiter, C. and Scardamalia, M. (1982). From conversation to composition: The role of instruction in a developmental process. In R. Glaser (Ed.), *Advances in instructional psychology* (Vol. 2, pp. 1-64). Hillsdale, NJ: Erlbaum.

Berliner, D.C. (I984) Making the right changes in preservice teacher education. *Phi Delta Kappan, 6*(2), 93 – 96.

Berliner, D.C. (1986) In pursuit of the expert pedagogue. *Educational Researcher, 15*(7), 5 – 13.

Bloom, B.S. (1976). *Human characteristics and school learning.* New York: McGraw-Hill.

Bloom, B.S. (1984) The 2 sigma problem: The search for methods of group instruction as effective as one – to – one tutoring. *Educational Researcher, 13*(6), 4 – 16.

Blum, R.E., *et al.* (1986). *Effective School Practices: A Research Synthesis.* Portland: Northwest Regional Educational Laboratory.

Boston Globe. (1990, May 8). Layoff notices are sent to 8,949 Mass. teachers. Boston: Author, p. I.

Boston Public Schools. (1990). *School profiles: Boston Public Schools 1988-1989.* Boston: Author.

Brookover, W.B., Beady, C., Flood, P., Schweitzer, J. (1979). *School systems and student achievement: Schools make a difference.* New York: Praeger.

Borrker, W.B., and Lezootte, L.W. (1979). *Changes in school characteristics coincident with changes in student achievement.* East Lansing: Institute for Research on Teaching, Michigan State University.

Brown, R. (1989). Testing and thoughtfulness. *Educational Leadership, 46*(7), 31-33.

Cannell, J.J. (1988). Nationally normed elementary achievement testing in America's public schools: How all 50 states are above the national average. *Educational Measurement* 7(2), 5-9.

Carnegie Council on Adolescent Development. (1989). *Turning points: Preparing American youth for the 21st century.* Carnegie Corporation of New York.

Center for Research on Elementary & Middle Schools. (1986, November). Principals say teacher observation and feedback is most important. In *CREMS Newsletter*. Baltimore: Johns Hopkins University.

Chicago Tribune. (1986). The American millstone: An examination of the nation's permanent underclass. Chicago: Author.

Chubb, J.E. (1988). Why the current wave of school reform will fail. *The Public Interest, 90*, 28-49.

Clark, R. W. (1988). School-University Relationships:An Interpretive Review. *School-University Partnerships in Action*, Sirotnik, K.A., & Goodlad, John I., (Eds.). New York:Teachers College Press.

Cochran-Smith, M. & Lytle, S.L. (1990). Research on teaching and teacher research: The issues that divide. *Educational Researcher, 19*(2), 2-11.

Cohen, M. (l983). Instructional, Management and Social Conditions in Effective Schools. In A.O. Webb & L.D. Webb (Eds.), *School Finance and School Improvement: Linkages in the l980's.*, Cambridge, MA: Ballinger.

Cohen, M. & Nagel, E. (1934). *Logic and the scientific method*. New York: Harcourt Brace.

Coleman, J.S. (1987). Families and schools. *Educational Researcher, 16*(6), 32-38.

Conley, S. C. (1988). Reforming paper pushers and avoiding free agents: The teacher as a constrained decision maker. Educational Administration Quarterly, *24*, 393-404.

Conley, S.C., & Bacharach, S.B. (1990). From school-site management to participatory school-site management. *Phi Delta Kappan, 71*(7), 539-544.

Conoley, J.C., & Kramer, J.J. (1989). Metropolitan Achievement Test, Sixth Edition. *Tenth Mental Measurement Yearbook*. Lincoln, NE: The Buros Institute of Mental Measurements, University of Nebraska Press, 503-510.

Corbett, H.D., Dawson, J.L. & Firestone, W.A. (1984). *School context and school change*. New York: Teachers College Press.

Coughlan, R.J. (1970). Dimensions of teacher morale. *American Educational Research Journal, 7*, 221-235.

Cox, W.B. (1978). Crime and punishment on campus: An inner city case. *Adolescence, 13*, 339-348.

Coyne, R. (1975). Environmental assessment: Mapping for counselor action. *Personnel and Guidance Journal, 54*, 150-155.

Cuban, L. (1983). Effective schools: A friendly but cautionary note. *Phi Delta Kappan, 64*(10), 695 – 696.

Cuban, L. (1990a). A fundamental puzzle of school reform. *Phi Delta Kappan, 69*(3), 340-344.

Cuban, L. (1990b). Reforming again, again, and again. *Educational Researcher, 19*(1), 3-13.

Darling-Hammond, L. (1985). Valuing teachers: the making of a profession. *Teachers College Record*, 205-218.

Darling-Hammond, L. (1988). The futures of teaching. *Educational Leadership, 46*(3), 4-10.

Darling-Hammond, L. & Berry, B. (1988). *The evolution of teacher policy.* Santa Monica, CA: The RAND Corporation.

Darling-Hammond, L. , & Wise, A.E. (1985). Beyond standardization: state standards and school improvement. *Elementary School Journal*, 315-336.

Davies, D. (1967). Notes and working papers prepared for the senate subcommittee on educational Cited in L.J. Rubin (Ed.) (1971). *Improving inservice education: Proposals and procedures for change*, p. 38. Boston: Allyn & Bacon.

DeBevoise, Wynn (1968). Collaboration:Some Principles of Bridgework. *Educational Leadership, 43*(5), 9-12.

DeKleer, J., and Brown, J. S. (1980). Mental models of physical mechanisms and their acquisition. In J. R. Anderson (Ed.), *Cognitive skills and their acquisition* . Hillsdale, NJ: Erlbaum, (285-309).

Dentzer E. & Wheelock, A. (1990). Locked in/locked out: Tracking and placement practices in Boston Public Schools. A report by the Massachusetts Advocacy Center, Boston.

Dewey, J. (1910). *How we think.* Boston: Heath.

Dorman, G. & Lipsitz, J. (1984). Early adolescent development. In Dorman, G. (Ed.), *Middle grades assessment program.* Carrboro, NC: Center for Early Adolescence.

Dorman G. (1987). *Improving middle school grades: A framework for action.* Carrobobo, NC: Center for Early Adolescence.

Duke, D.L., & Perry, C. (1978). Can alternative schools succeed where Benjamin Spock, Spiro Agnew, and B.F. Skinner have failed? *Adolescence, 13*, 375-392.

Edmonds, R.R. (1979a). Effective schools for the urban poor. *Educational Leadership, 37*(1), 15-27.

Edmonds, R.R. (1979b). Some schools work and more can. *Social Policy, Vol 12*., 56-60.

Ekstrom, R.B., Goertz, M.E., Pollack, J.M. & Rock, D.A. (1986). Who drops out of high school and why? Findings from a national study. *Teachers College Record, 87*(3), 356-373.

Ellet , C.D., Payne, D.A., Masters, J.A., & Pool, J.E. (1977). The relationship between teacher and student assessments of school environment characteristics and school outcome variables. Paper presented at the Annual Meeting of the Southeastern Psychological Association, Hollywood, FL.

Ellet, C.D., & Walberg, H.J. (1979). Principal's competency, environment, and outcomes. In H.J. Walberg (Ed.), *Educational environments and effects*. Berkeley, CA: McCutchan.

Ennis, R. H. (1985). Critical thinking and the curriculum, *National Forum, 65*(1), 28-31.

Ennis, R.H. (1989). Critical thinking and subject specificity: Clarification and needed research. *Educational Researcher, 18*(3), 4-10.

Epstein, J.L. (1990). What matters in the middle grades--Grade span or practices? *Phi Delta Kappan, 71*(6), 438-444.

Epstein, J.L. & McPartland, J.M. (1976). The concept and measurement of the quality of school life. *American Educational Research Journal, 13*, 15-30.

Epstein, J.L., McPartland, J.M., McDill, E.L., Braddock, J.H., Karweit, N. (1985). Overview: Middle schools program. Center for Research on Elementary and Middle Schools. Baltimore: The Johns Hopkins University.

Entwisle, D.R., Alexander, K.L., Cadigan, D., & Pallas, A.M. (1987). Kindergarten experience: Cognitive effects or socialization? *American Educational Research Journal, 24*(3), 337-364.

Farrar, E. & Hampel, R.L. (1987). Social services in American high schools. *Phi Delta Kappan, 69*(4), 297-308.

Feistritzer, E. (1986). Education vital signs: Teachers. *American School Board Journal, 173*(10), 12-16.

Firestone, W.A. (1989). Beyond Order and expectations in high schools serving at-risk youth. *Educational Leadership, 46*(5), 41-45.

Firestone, W.A., and Rosenblum, S. (1988). Building commitment in urban high schools. *Educational Evaluation and Policy Analysis, 10*(4), 285-299.

Feldhusen, J.F., Houtz, J.C. & Ringenback, S.E. (1972). The Purdue elementary problem solving inventory. *Psychological Reports, 31*, 891-901.

Fleming, M. & Chambers, B. (1983). Teacher-made tests: Windows to the classroom. In W.E. Hathaway (Ed.) , *New directions for testing and measurement: Testing in the schools* . San Francisco: Jossey-Bass, 29-38.

Flowers, L.S., & Hayes, J. R. (1980). The dynamics of composing: Making plans and juggling constraints. In L. Gregg & E. Steunberg, (Eds.), *Cognitive processes in writing: An interdisciplinary approach* (pp. 31-500. Hillsdale, NJ: Erlbaum.

Follman, J., Brown, L., & Burg, E. (1970). Factor analysis of critical thinking, logical reasoning and English subtests. *The Journal of Experimental Education, 38*(4), 11-16.

Follman, J. & Lowe, A. (1972). Empirical examination of critical thinking--overview, *Journal of Reading Behavior, 73*(5), 159-168.

Foster, M. & Martin, M. (1966). *Probability confirmation and simplicity*. New York: Odyssey Press.

Frederiksen, N. (1984). The real test bias: Influences of testing on teaching and learning. American Psychologist, *39*, 193-202.

Friedkin, N.E. & Necochea, J. (1988). School system size and performance: A contingency perspective. *Educational Evaluation and Policy Analysis, 10*(3), 237-249.

Gage, N. L. (l984) What do we know about teaching effectiveness? *Phi Delta Kappan, 66*(2), 93 – 96.

Gagne. R.M. (1959). *Problem solving and thinking*. Annual Review of Psychology, *10*, 147-172.

Gagne, R.M. (1964). Problem solving. In E.W. Melton (Ed.), *Categories of human learning*. New York: Academic Press.

Gantt, W. (1970). Questioning for thinking: A teaching strategy that makes a difference for disadvantaged learners. *The Reading Teacher, 24*(1), 12-16.

Glaser, R. (1988). Cognitive and environmental perspectives on assessing achievement. In Assessment in the service of learning: Proceedings of the 1987 ETS invitational conference (pp. 37-43). Princeton, NJ: Educational Testing Service.

Glaser, R. (1984). Education and thinking: The role of knowledge. *American Psychologist, 39*, 93-104.

Goldman, R., Bishirian, R., Ellenwood, S. Ryan, K., McLaren, N., Alexeeff, M.A., and Cecil, E. (1989). *The art of loving well: A character/values based curriculum*, 2nd. ed. Boston: Boston University.

Good, T.L. (1983) Classroom Research: A Decade of Progress. *Educational Psychologist, 18*(3), 127 – 144.

Good, T.L. (1989). Using work groups in mathematics instruction. *Educational Leadership, 47*(4), 56-62.

Good, T. & Brophy, J. (1985). School Effects. In M. Whitrock, *Third Handbook of Research on Teaching*. New York: MacMillian.

Goodlad, J. (I983). *A Place Called School: Prospects for the Future*. New York: McGraw-Hill.

Goodson, B., Swartz, J. & Bronson, M. (1987). Annual report on chapter 188 implementation. Massachusetts Department of Education, Office of Executive Planning. Cambridge, MA: Abt Associates.

Graber, J.A. & Petersen, A.C. (1990). Cognitive changes at adolescence: Biological perspectives. In K. Gibson & A.C. Peterson (Eds.), *The brain and behavioral development: Biosocial dimensions*. New York: Aldine.

Gray, M. (1969). Research and elementary school critical reading instruction, *The Reading Teacher, 22*(5):453-459.

Guilford, J.P. (1965). Intellectual factors in productive thinking. In M.J. Aschner & C. Bish (Eds.), *Productive thinking in education*. Washington, DC: National Education Association.

Haller, E.J., & Strike, K.A. (1979). Toward a methodology of policy research in educational administration. In G.L. Immegart & W.L. Boyd (Eds.), *Problem-finding in educational administration: Trends in research and theory*. Lexington, MA: D.C. Heath.

Halpin, A.W. & Croft, D.B. (1963). *The organizational climate of schools*. Chicago: University of Chicago Press.

Haney, W. & Madaus, G. (1989). Searching for alternatives to standardized tests: Whys, whats, and whithers. *Phi Delta Kappan, 70*(9), 683-687.

Hellriegel, D. & Slocum, J.W.,Jr. (1974). Organizational climate: Measures, research and contingencies. *Academy of Management Journal, 17*, 255-280.

Hempel. C. (1966). *Philosophy of natural science*. Englewood Cliffs, NJ: Prentice Hall.

Henderson, K. (1972). The teaching of critical thinking. *Educational Forum*, *37*(1):45-52.

Hoover, M.R. (1978). Characteristics of black schools at grade level: A description. *Reading Teacher*, *31*, 757-762.

Iani, F.A.J. (1989). Providing a structure for adolescent development. *Phi Delta Kappan*, *70* (9), 673-682.

Jacobs, S. (1990, March 18). Teenagers find haven in downtown mall. *The Boston Sunday Globe*, 25-26.

Jencks, C.S., Smith, M., Ackland, H., Bane, J.J., Cohen, D., Gintis, H., Heyns, B., and Michelson, S. (1972). *Inequality: A reassessment of the effect of family and schooling in America*. New York: Basic Books.

Jenson, A.R. (1969). How much can we boost IQ and scholastic achievement? *Harvard Educational Review.*, *39*, 1-123.

Johnson, D.M. (1972). *Systematic introduction to the psychology of thinking*. New York: Harper & Row.

Kaagan, S., & Smith, M.S. (1985). Indicators of educational quality. *Educational Leadership*, *43*(2), 21-24.

Larkin, J. H., McDermott, J., Simon, D.P., and Simon H. (1980). Expert and novice performance in solving physics problems. *Science*, *208*. 1335-1342.

Lieberman, A. (1988). Teachers and principals: turf, tension, and new tasks. *Phi Delta Kappan*, *69*(9) 648-653.

Linn, R. L. (1986). Educational testing and assessment: Research needs and policy issues. *American Psychologist*, *41*, 1153-1160.

Little, J.W. (1982). Norms of Collegiality and Experimentation: Workplace Conditions of School Success. *American Educational Research Journal*, *19*(3), 325-340.

Lukas, J.A. (1985). *Common Ground: A Turbulent Decade in the Lives of Three American Families*. New York: Alfred A. Knopf.

Madaus, G.F. (1988). The influence of testing on the curriculum. In I.N. Tanner (Ed.), *Critical issues in curriculum: 87th yearbook of the National Society for the Study of Education* (pp. 83-121). Chicago: University of Chicago Press.

Madaus, G.F., Kellaghan, T., Rakow, E.A. and King, D.J. (1979). The sensitivity of measures of school effectiveness. *Harvard Educational Review. Vol. 49*, No. 2, 207-230.

Medley, D.M. (1983) Teacher Effectiveness. In H.E. Mitzel (Ed.). *Encyclopedia of Educational Research*, 5th ed., *4*, 1894 – 1903.

Maeroff, G. I. (1984). *School and College Partnerships in Education.* Princeton, N.J.: The Carnegie Foundation for the Advancement of Teaching.

Maeroff, G.I. (1988). *The empowerment of teachers: Overcoming the crisis of confidence.* New York: Teachers College Press.

Martin, M. (1972). *Concepts of science education.* Glenview, IL: Scott, Foresman.

McDill, E.L., & Rigsby, L.C. (1973). *Structure and process in secondary schools: The impact of educational climates.* Baltimore: Johns Hopkins University Press.

McPartland, J.M., & Epstein, J.L. (1975). Social class differences in the effects of open schools on student achievement. Baltimore: Johns Hopkins University, Center for the Study of Social Organization of Schools.

McPeck, J. (1981). *Critical thinking and education.* New York: St. Martin's.

McTighe, J., & Ferrara, S. (1988). Assessing student thinking: Work in progress in Maryland. *Teaching Thinking and Problem Solving, 10*(4), 1-4.

Medley, D.M. (1983) Teacher Effectiveness. In H.E. Mitzel (Ed.), *Encyclopedia of Educational Research*, 5th ed., *4*, 1894 – 1903.

Metz, M.H. (1983). Sources of constructive social relationships in an urban magnet school. *American Journal of Education.* 202-216.

Meisels, S.J. (1989). High stakes testing in kindergarten. *Educational Leadership, 46*(7), 16-22.

Merrifield, J.R., Guilford, J.P., Christensen, P.R., & Frick, J.W. (1962). The role of intellectual factors in problem solving. *Psychological Monographs, 76*, (10).

Michaels, K. (1988). Caution: Second-wave reform taking place. *Educational Leadership, 45*(5), 3-4.

Mitchell, J.V. , Jr. (1967). A study of high school learning environments and their impact on students. (Report, U.S. Office of Education, Project No. 5-8032). Rochester, NY: University of Rochester.

Mohrman, A.M., Cooke, R.A. & Morhman, S.A. (1978). Participation in decision making: A multidimensional perspective. Educational Administration Quarterly, *14*, 13-29.

Moos, R. H. (1979). *Evaluating educational environments.* San Francisco, Jossey-Bass.

Morgenstern, C. F. & Renner, J. W. (1984). Measuring thinking with standardized tests. Journal of Research in Science Teaching, *21*, 639-648.

Mortimore P., & Sammons, P. (1987). New evidence on effective elementary schools. *Educational Leadership*, Sept., 4-8.

Mortimore, P., Sammons, P., Stoll, L., Lewis, D., and Ecob, R. (1988). *School matters.* University of California Press.

Murnane, R.J. (1982). Interpreting the evidence on school effectiveness. *Teachers College Record, 83*(1), 19-35.

Nagel, E. (1961). *The structures of science.* New York: Harcourt Brace.

National Assessment of Educational Progress. (1986). *Television: What do national assessment results tell us?* Princeton, NJ: Author.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform.* Washington, DC: Author.

Newell, A., & Simon, H.A. (1972). *Human problem solving.* Englewood Cliffs, NJ: Prentice-Hall.

Newmann F.W. (1981). Reducing student alienation in high schools: Implications of theory. *Harvard Educational Review,* 51(4), 546-564.

Newman, F.M. (1987). Overview of research mission. National Center on Effective Secondary Schools, University of Wisconsin--Madison. Mimeo.

Newman, F.M. (1990). Investing in today's youth through "I have a dream": Introduction. *National Center on Effective Secondary Schools Newsletter, 4*(3). 1-2.

Nickerson R.S. (1989). New directions in educational assessment. *Educational Researcher, 18*(9), 3-7.

Noddings, N. (1989, March). Developing Models of Human Caring in the Professions. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco.

Norris, S.P. (1989). Can we test validity for critical thinking? *Educational Researcher, 18*(9), 21-26.

Norris, S.P. & Ennis, R.H. (1989). *Evaluating critical thinking.* Pacific Grove, CA: Midwest.

Norris, S.P. & King, R. (1983). Test on Appraising Observations. St. John's Memorial University of Newfoundland, Institute for Educational Research and Development.

Oakes, J. (1986). Tracking, inequality, and the rhetoric of reform: Why schools don't change. *Journal of Education, 168*(1), 60-80.

Oakes, J. (1989). What educational indicators? The case for assessing the school context. *Educational Evaluation and Policy Analysis, Vol 11.*, No. 2, 181-199.

Paul, R. (1985). McPeck's mistakes. *Informal Logic, 7*(1), 35-43.

Perkins, D.N. (1985). Reasoning as imagination. *Interchange, 16*(1), 14-26.

Perkins, D.N., & Salomon, G. (1989). Are cognitive skills contest-bound? *Educational Researcher, 18*(1), 16-25.

Plowden Report . (1967). *Children and their primary schools.* London: HMSO.

Popham, W. J. (1987). The merits of measurement-driven instruction. *Phi Delta Kappan, 68*, 679-682.

Porter, A. (1988). Indicators: Objective data or political tool? *Phi Delta Kappan, 69*(7), 503-508.

Powell, A.G., Farrar, E., & Cohen, D.K. (1985). *The shopping mall high school: Winners and losers in the educational market place.* Boston: Houghton-Mifflin.

Purkey,, S.C. & Smith, M.S. (l983). Effective Schools: A Review. *Elementary School Journal, 83*, (4), 427-452.

Rallis, S.F., & Highsmith, M.C. (1986). The myth of the 'great principal': Questions of school management and instructional leadership, *Phi Delta Kappan, 68*. 300-304.

Rankin, S.C. & Hughes, C.S. (1987). The Rankin-Hughes framework of thinking skills. In J.A. Arter & J.R. Salmon, eds., Conference Proceedings of the Northwest Regional Educational Laboratory: Assessing Higher Order Thinking Skills. Portland, Ore.: NREL, pp. 8-15.

Resnick, L. B. (1987). *Education and learning to think.* Washington, D.C.: National Academy Press.

Richards, C.E. (1988). Indicators and three types of educational monitoring systems: Implications for design, *Phi Delta Kappan, 69*(7), 495-498.

Riehl, C.J. & Grannis, J.C. (1989, March). Student sensitivity and the effects of variation in school environments on the behaviors and attitudes of at-risk middle school students. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco.

Rutherford, W.L. School principals as effective leaders. *Phi Delta Kappan, 67*(1), 31-34.

Rutter, M., Maughan, B., Mortimore, P., & Ouston,J. (1979). *Fifteen thousand hours: Secondary schools and their effects on children.* Cambridge MA: Harvard University Press.

Rowan, B., Bossert, S.T., & Dwyer, D.C. (I983). Research on Effective Schools: A Cautionary Note. *Educational Researcher, 12*(4), 24 – 31.

Ryan, K. (1986). The new moral education. *Phi Delta Kappan, 68*(4), 228-233.

Ryan, K. & Ellenwood,S. (1988). The character education project. Final report to the US Department of Education, Office of Educational Research and Improvement.

Saadeh, I. (1969). The teacher and the development of critical thinking. *Journal of Research and Development, 3*(1).

Scheerens, J. (1989). Process indicators of school functioning. Department of Education, University of Twente, Netherlands (mimeo).

Shanker, A. (1990). The end of the traditional model of schooling--and a proposal for using incentives to restructure our public schools. *Phi Delta Kappan, 71*(5), 344-357.

Shann, M.H. (1976). Measuring problem solving skills and processes in elementary school children. Report to the National Science Foundation. *Resources in Education,* ED 135 807, 258 pp.

Shann, M.H. (1977a). Student effects of an interdisciplinary curriculum for real problem solving. Final report to the National Science Foundation on grant no. PES 74 – 00542 A01. *Resources in Education,* ED 135 864, 376 pp.

Shann, M.H. (1977b). Evaluation of an interdisciplinary problem solving curriculum in elementary science and mathematics. *Science Education, 61*(4) 491 – 502.

Shedd, J.B. (1988). Collective bargaining, school reform, and the management of school systems, *Educational Administration Quarterly, 24*, 405-415.

Shephard, L. A. (1989). Why we need better assessments. *Educational Leadership, 46*(7), 4-9.

Shulman, L.S. (1986) Those who understand: knowledge growth in teaching. *Educational Researcher, 15*(3), 4 – 14.

Simon, H.A. (1976). Identifying basic abilities underlying intelligent performance of complex tasks. In L.B. Resnick, (Ed.), *The nature of intelligence* (pp. 65-98). Hillsdale NJ: Erlbaum.

Skinner, S.B. (1971). The myth of teaching for critical thinking. *The Clearing House*, 45:372:375.

Skinner, S.B. (1976). Cognitive development: a prerequisite for critical thinking. *The Clearing House*, 49:292-299.

Slavin, R.E. (1983). *Cooperative learning*. New York: Longman.

Slavin, R.E. (1990). Research on cooperative learning: Consensus and controversy. *Educational Leadership*, *47*(4), 52-55.

Slavin, R.E. (1989). PET and the pendulum: faddism in education and how to stop it. *Phi Delta Kappan*, *70*(10) 752-758.

Smith, M.S. (1988). Educational indicators. *Phi Delta Kappan*, *69*(7), 487-491.

Steers, R.M. (1977). Antecedents and outcomes of organizational commitment. *Administration Science Quarterly*, *18* (1), 60-74.

Stern, G.G. (1961). Continuity and contrast in the transition from high school to college. In N.C. Brown (Ed.), *Orientation to college learning--A reappraisal*. Washington, D.C.: American Council on Education.

Swick, K. & Miller, H. (1975). Utilization of analogies to teach critical thinking skills. *The Clearing House*, *48*, 180-182.

Taba, H. (1955). *School culture*. Washington, D.C.: American Council on Education.

Taguri, R. (1968). The concept of organizational climate. In R. Taguri & G.H. Litwin (Eds.), *Organizational climate: Exploration of a concept*. Boston: Harvard University, Division of Research, Graduate School of Business Administration.

U.S. Department of Education, Office of Educational Research and Improvement. (1988). *Youth Indicators*. Washington, DC:U.S. Government Printing Office.

Vyskocil, J.R., & Goens, G.A. (1979). Collective bargaining and supervision: A matter of climate. *Educational Leadership*, *37*, 175-177.

Walberg, H.J. (1988). Synthesis of research on time and learning. *Educational Leadership* *45*(6), 76-81.

Walberg, H.J. (1990). Productive teaching and instruction: Assessing the knowledge base. *Phi Delta Kappan*, *71*(6), 470-478.

Walberg, H.J, Bakalis, M.J., Bast, J.L. & Baer, S. (1989). Reconstructing the nation's worst schools. *Phi Delta Kappan, 70*(10) 802-805.

Wasserman, Selma. (1989). Reflections on measuring thinking, while listening to Mozart's *Jupiter* Symphony. *Phi Delta Kappan, 70*(5) 365-370.

Watson, G., & Glaser, E.M. (1980a). Watson-Glaser Critical Thinking Appraisal Form A. Cleveland, OH: Psychological Corporation.

Watson, G. & Glaser, E.M. (1980b). Manual: Watson-Glaser Critical Thinking Appraisal. Cleveland, OH: Psychological Corporation.

Weaver, W.T. (1984a). Solving the problem of teacher quality, part I. *Phi Delta Kappan, 66*(2), 108-115.

Weaver, W.T. (1984b). Solving the problem of teacher quality, part II. *Phi Delta Kappan, 66*(3), 185-188.

Weber, G. (1971). *Inner city children can be taught to read: Four successful schools.* Washington D.C.: Council for Basic Education.

Wheelock, A. & Dorman, G. (1988). Before it's too late: Dropout prevention in the middle grades. A report by the Massachusetts Advocacy Center and the Center for Early Adolescence. Boston

Wiggins, G. (1989). Teaching to the (authentic) test. *Educational Leadership, 46*(7), 41-47.

Wise, A.E. (1979). *Legislated learning: The bureaucratization of the American classroom.* Berkeley: University of California Press.

Wise, A.E. (1988). The two conflicting trends in school reform: Legislated learning revisited. *Phi Delta Kappan,* 69 (5), 328-332.

Wise, A.E. (1990). Six steps to professionalism. *Educational Leadership, 47*(7), 57-60.

Woods, J. & Walton, D. (1974). Informal logic and critical thinking, *Education, 95*(1), 84-86.

Wynne, E.A., & Walberg, H.J. (1986). The complementary goals of character development and academic excellence. *Educational Leadership, 43*(4), 15-18.

APPENDIX A.1

TEACHER QUESTIONNAIRE

RESEARCH FOR EFFECTIVE MIDDLE SCHOOLS PROJECT

BOSTON UNIVERSITY SCHOOL OF EDUCATION

This questionnaire is being used to gather information from teachers in middle schools about the responsibilities and conditions you face, and the resources and opportunities you have as professionals. Complete confidentiality is assured. It is very important that you be as candid as possible in your answers. Do not respond to any question that you feel is too personal or that, for any other reason, you prefer to leave unanswered. We will report back to you the summary data for your school, but only group statistics will be reported.

1. Are you male or female? 1. Male ( ) 2. Female ( )

2. What race/ethnic group do you belong to?
    1. Asian ( )
    2. Black ( )
    3. Caucasian ( )
    4. Hispanic ( )
    5. Native American ( )
    6. Other ( ); please specify ______________________

3. How many years of experience as a teacher have you had? Include this year as one year of experience.________years.

4. How long have you been a teacher in this school? ___________ years

5. What grade(s) are you teaching? Check all appropriate grades.
    1. 6th grade ( )
    2. 7th grade ( )
    3. 8th grade ( )

6. What is the highest degree you hold?
    1. Less than a Bachelor's degree ( )
    2. Bachelor's degree ( )
    3. Some graduate work but less than a Master's degree ( )
    4. Master's degree ( )
    5. More than a Master's degree but not a Doctorate ( )
    6. Doctoral degree ( )

7. What was your major as an undergraduate?
    1. Education ( )
    2. Liberal Arts ( )
    3. Education and a discipline area ( ) : please specify discipline _____________
    4. Other ( ) : please specify _______________

8. What was your major as a masters student?
   1. Not applicable ( )
   2. Education ( ) : please indicate speciality________________
   3. Liberal Arts ( ) : please specify discipline____________________
   4. Education and a discipline area ( ) : please specify discipline ____________
   5. Other ( ) : please specify ______________

9. What was your major as a doctoral student?
   1. Not applicable ( )
   2. Education ( ) : please indicate speciality________________
   3. Liberal Arts ( ) : please specify discipline____________________
   4. Education and a discipline area ( ) : please specify discipline ____________
   5. Other ( ) : please specify ______________

10. What subject(s) do you teach? (Check all which apply.)
   1. Language Arts ( )
   2. Mathematics ( )
   3. Science ( )
   4. Social Studies ( )
   5. Physical Education ( )
   6. Other; please specify _________________.

11. What language or languages do you teach in? (Check all which apply.)
   1. English ( )
   2. Spanish ( )
   3. Vietnamese ( )
   4. French ( )
   5. Haitian-Creole ( )
   6. Other ( ); please specify ________________________

12. Are you responsible for (participate in) any special programs in your school? (Check all that apply.)
   1. No ( )
   2. Bilingual ( )
   3. Lab School ( )
   4. Special Education ( )
   5. Gifted-general ( )
   6. Special Gifted ( )
   7. Supplemental/Remedial ( )
   8. Other ( ); please specify ______________________

13. In what other capacities do you serve students in the school, formally or informally, besides teaching?
   1. Athletic coaching ( )
   2. Career counseling ( )
   3. Academic counseling ( )
   4. Personal counseling ( )
   5. Cluster/team leader ( )
   6. Department head ( )
   7. Nurse ( )
   8. Librarian ( )
   9. Other ( ); please specify_______________________
   9. Other professional role:_______________

14. How much say do you have in determining the following issues?

	Does not apply	A lot		Moderate say		None
A. Your teaching schedule	0	1	2	3	4	5
B. Your room assignment	0	1	2	3	4	5
C. Your cluster or team assignment	0	1	2	3	4	5
D. Your cluster's (team's) leader	0	1	2	3	4	5
E. What courses you teach	0	1	2	3	4	5
F. Which ability levels you teach	0	1	2	3	4	5
G. What content you teach	0	1	2	3	4	5
H. What instructional objectives are set	0	1	2	3	4	5
I. What teaching methods you use	0	1	2	3	4	5
J. What textbooks you use	0	1	2	3	4	5
K. What other materials you use	0	1	2	3	4	5
L. What standardized tests are given	0	1	2	3	4	5
M. What informal tests are given	0	1	2	3	4	5
N. What student grades are assigned	0	1	2	3	4	5
O. Whether students are promoted	0	1	2	3	4	5
P. How students are placed	0	1	2	3	4	5
Q. How teachers are evaluated	0	1	2	3	4	5
R. Who evaluates you	0	1	2	3	4	5
S. When your classes are observed	0	1	2	3	4	5
T. What staff development takes place	0	1	2	3	4	5
U. Which teachers serve on committees	0	1	2	3	4	5
V. Which teachers attend conferences	0	1	2	3	4	5
W. How inservice days are used	0	1	2	3	4	5
X. How professional days are used	0	1	2	3	4	5
Y. How school budgets are spent	0	1	2	3	4	5

15. Please circle the appropriate number on the 5-point scale to indicate the extent to which teachers in your school exhibit the following behaviors:

	a lot		sometimes		almost never
A. Engage in social conversation	1	2	3	4	5
B. Exchange ideas about teaching	1	2	3	4	5
C. Discuss problems about individual students	1	2	3	4	5
D. Make negative remarks about other teachers	1	2	3	4	5
E. Greet each other warmly	1	2	3	4	5
F. Complain about working conditions	1	2	3	4	5
G. Joke about difficult situations	1	2	3	4	5
H. Discuss personal problems with each other	1	2	3	4	5
I. Share teaching materials	1	2	3	4	5
J. Discuss suggestions for new school programs	1	2	3	4	5
K. Insult other teachers directly					
K. Develop curriculum materials together	1	2	3	4	5
L. Work on test construction together	1	2	3	4	5
M. Step in for other teachers in emergencies	1	2	3	4	5

16. Please circle the appropriate number on the 5-point scale to indicate the degree of influence each of the following factors, individuals or groups have over decisions about the school's curriculum.

	a lot		some		almost none
A. Individual teachers	1	2	3	4	5
B. Groups or clusters of teachers	1	2	3	4	5
C. Principal	1	2	3	4	5
D. Tradition	1	2	3	4	5
E. District level administrators	1	2	3	4	5
F. Central office administrators	1	2	3	4	5
G. School committee	1	2	3	4	5

17. Please circle the appropriate number on the 5-point scale to indicate first how important each item is for your job satisfaction, and second, how well satisfied you are presently with that aspect of your job.

A. Salary:	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
B. Job security	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfie
C. Level of student achievement	Very important	1	2	3	4	5	very *Un*important
	Very satisfied	1	2	3	4	5	very *un*satisfied
D. Parent/teacher relationships	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
E. Teacher/teacher relationships	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
F. Teacher/pupil relationships	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
G. Teacher/administrator relationships	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
H. The curricula in school	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
I. Teacher autonomy	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
J. Teacher authority over students	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
K. Teacher evaluation procedures	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
L. Recognition for teacher achievement	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
M. Participation in making decisions	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied
N. Administrative support in improving student achievement.	Very important	1	2	3	4	5	Very *Un*important
	Very satisfied	1	2	3	4	5	Very *un*satisfied

18 Please circle the appropriate number on the 5-point scale to indicate first how successful you think this school has been with regard to *meeting student needs* in the areas listed below, and second, what priority you think your school should place on that area. If you don't know or if you have no opinion, please leave the item blank.

A.	Teaching basic literacy skills	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
B.	Teaching writing	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
C.	Teaching mathematics	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
D.	Teaching science	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
E.	Teaching social studies	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
F.	Teaching computer skills	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priori
G.	Teaching thinking skills	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
H.	Teaching bilingual education	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
I.	Teaching special education	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
J.	Teaching multicultural education	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
K.	Teaching art and music	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
L.	Teaching the gifted and talented	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
M.	Teaching moral/ethical values	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
N.	Teaching social courtesies	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
O.	Promoting students self esteem	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
P.	Providing occupational counseling	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
Q.	Providing educational counseling	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority

18. (Cont.) Again, please circle the appropriate number on the 5-point scale to indicate first how successful you think this school has been with regard to *meeting student needs* in the areas listed below, and second, what priority you think your school should place on that area. If you don't know or if you have no opinion, please leave the item blank.

R.	Making rooms/corridors attractive	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
S.	Providing general health education	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
T.	Providing nutritious meals	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
U.	Providing a drug education program	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
V.	Providing an AIDS education program	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
W.	Providing a sex education program	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
X.	Providing pregnancy counseling	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
Y.	Providing referrals to social service agencies	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
Z.	Providing positive role models	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
a.	Providing a safe, orderly environment	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
b.	Creating a caring environment	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
c.	Showing concern for students' personal needs	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
d.	Setting high expectations for students	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority
e.	Involving parents in student learning	very successful	1	2	3	4	5	very unsuccessful
		high priority	1	2	3	4	5	low priority

Your answers are really important. Please keep going. And thank you!

19. **Please circle the appropriate number on the 5-point scale to indicate how often you use the following methods in your teaching:**

	a lot		sometimes		almost never
A. Teacher lecturing to the whole class	1	2	3	4	5
B. Teacher leading discussion among whole class	1	2	3	4	5
C. Teacher visiting small groups within the class	1	2	3	4	5
D. Teacher giving demonstration with equipment	1	2	3	4	5
E. Students giving presentations to the class	1	2	3	4	5
F. Students discussing problems in small groups	1	2	3	4	5
G. Students writing papers, stories, assignments	1	2	3	4	5
H. Students filling in workbooks or exercise sheets	1	2	3	4	5
I. Students measuring, collecting data	1	2	3	4	5
J. Students creating things	1	2	3	4	5
K. Students working in laboratories	1	2	3	4	5
L. Students taking supervisied field trips	1	2	3	4	5
M. Students working all on the same lesson	1	2	3	4	5
N. Students walking about the room	1	2	3	4	5
O. Whole class working together	1	2	3	4	5
P. Students working on a project of their choice	1	2	3	4	5

20. **How important are each of the following factors in determining teaching objectives for your students?**

	very important		somewhat important		very unimportant
A. School policy	1	2	3	4	5
B. Student Interest	1	2	3	4	5
C. Individual student ability	1	2	3	4	5
D. Your personal preference	1	2	3	4	5
E. Available textbooks	1	2	3	4	5
F. Other available resources	1	2	3	4	5
G. What will be tested	1	2	3	4	5

21. Circle the appropriate number on the 5-point scale to indicate the degree to which each of the following behaviors is typical of students in your school. Also, please give a recent example of each.

	never happens				very typical
A. Student volunteering	1	2	3	4	5
B. Student involvement in decision making	1	2	3	4	5
C. Taking care of school property	1	2	3	4	5
D. Tolerating others	1	2	3	4	5
E. Making friendships across racial and ethnic groups	1	2	3	4	5
F. Showing respect for teachers	1	2	3	4	5
G. Showing appreciation of teachers	1	2	3	4	5
H. Showing interest in learning	1	2	3	4	5
I. Helping other students learn	1	2	3	4	5
J. Participating in extracurricular activities	1	2	3	4	5
K. Complimenting other students for good work	1	2	3	4	5

A. Example: ____________________
____
____

B. Example: ____________________
____
____

C. Example: ____________________
____
____

D. Example: ____________________
____
____

E. Example: ____________________
____
____

F. Example: ____________________
____
____

G. Example: ____________________
____
____

H. Example: ____________________
____
____

I. Example: ____________________
____
____

J. Example: ____________________
____

K. Example: ____________________
____

22. Circle the appropriate number on the 5-point scale below to indicate the degree to which each of the following behaviors is typical of students in your school. Also, please give a recent example of each.

	no problem/ never happens				very typical
A. Stealing	1	2	3	4	5
B. Destruction of school property	1	2	3	4	5
C. Sex offences	1	2	3	4	5
D. Impertinence and discourtesy to teachers	1	2	3	4	5
E. Meanness and bullying between students	1	2	3	4	5
F. Fighting	1	2	3	4	5
G.. Racial incidents	1	2	3	4	5
H. Truancy	1	2	3	4	5

A. Example:______________________
____
____

B. Example: ____________________
____
____

C. Example: ____________________
____
____

D. Example: ____________________
____
____

E. Example: ____________________
____
____

F. Example: ____________________
____
____

G. Example: ____________________
____
____

H. Example: ____________________
____

	no problem/ never happens				very typical
I. Physical violence against teachers	1	2	3	4	5
Example: ____________________ ______________________________ ______________________________					
J. Using profane or obscene language	1	2	3	4	5
Example: ____________________ ______________________________ ______________________________ ______________________________					
K. Using illegal drugs	1	2	3	4	5
Example: ____________________ ______________________________ ______________________________					
L. Drinking alcohol	1	2	3	4	5
Example: ____________________ ______________________________ ______________________________					
M. Cheating on tests	1	2	3	4	5
Example: ____________________ ______________________________ ______________________________					
N. Creating classroom disorder or chaos.	1	2	3	4	5
Example: ____________________ ______________________________ ______________________________					
O. Smoking in school	1	2	3	4	5
Example: ____________________ ______________________________ ______________________________					

23. What is your job? Please rank order the following in terms of their importance, "1" being most important, "5" being least important.

1. to help students learn _____
2. to be a friend to students ____
3. to teach values to students ____
4. to take care of students (giving counseling, medical, social, or other services) ____
5. other; please specify ____ ____

24. What do you think your job should be? Please rank order the following in terms of their importance, "1" being most important, "5" being least important.

1. to help students learn _____
2. to be a friend to students ____
3. to teach values to students ____
4. to take care of students (giving counseling, medical, social, or other services) ____
5. other; please specify ____ ____

25. What do you think the principal's job should be? Please rank order the following in terms of their importance, "1" being most important, "5" being least important.

1. to discipline the students ____
2. to supervise the teachers ____
3. to lead curriculum and program planning ____
4. the oversee school operations and scheduling ___
5. to provide resources to teachers ____

26. Please rank order what you like most about teaching in this school?

1. the students ____
2. the teachers ____
3. the principal ____
4. the physical environment ____
5. other; please specify______________

27. Please rank order what you would like to change in this school?

1. student assignments ____
2. the teaching staff ____
3. the principal ____
4. the physical environment ____
5. other; please specify___________ ____

28. Do you particpate in planning and decision making when you have the opportunity to do so?

never 1	2	3	4	a lot 5

29. Do you participate in committees within your school besides cluster meetings?

never 1	2	3	4	a lot 5

30. Do you participate in district or system wide committees?

never 1	2	3	4	a lot 5

31. How are these opportunities comunicated to you? Please check all that apply.

1. word of mouth (other teachers) ( )
2. staff meetings ( )
3. loud speaker/intercom ( )
4. notices posted on a board ( )
5. mass mailings to all teachers
6. personal request or invitation by leader ( )
7. other ( )

32. Do you participate in any professional development activity outside of your work for the Boston Public Schools?

Yes ( ) No ( )
If yes, please specify____________________________________

33. Do you think this middle school has some special characteristics distinguishing it from other middle schools?
Yes ( ) No ( )

b. If yes, would you please note briefly what you think those characteristics are?

____
____
____
____

34. Please provide any other comments which you think should be added to this questionnaire.

____
____
____
____

You've finished! Thanks a lot! You'll be hearing from us with the results.

APPENDIX A.2

TEACHER QUESTIONNAIRE RESPONSES- ALL SCHOOLS

RESEARCH FOR EFFECTIVE MIDDLE SCHOOLS PROJECT

BOSTON UNIVERSITY SCHOOL OF EDUCATION

So that teachers would be as candid as possible in their answers, they were advised not to respond to any questions that they felt were too personal or that, for any other reason, they preferred to leave unanswered. Complete confidentiality was assured. This report summarizes responses for all four schools.

NOTE: Figures are valid %s. Missing responses are #missing (only reported if > 6).

1. Are you male or female? 1. Male (40.2) 2. Female (59.8)

2. What race/ethnic group do you belong to?
    1. Asian (1.2)
    2. Black (16.5)
    3. Caucasian (63.5)
    4. Hispanic (10.6)
    5. Native American (2.4)
    6. Other (3.5); please specify

    Two people reported a combination - one was 3 & 4; the other was 3 & 5. Missing responses-7.

3. How many years of experience as a teacher have you had? Include this year as one year of experience.

    1 - 5 years: 15.4 6 - 10 years: 19.8 11 - 15 years: 15.4
    16-20 years: 27.5 21-25 years: 11.0 more than 25 years: 11.0

4. How long have you been a teacher in this school?

    1 year: 20.0 2 years: 9.4 3 years: 5.9 4 years: 9.4 5 years: 16.5
    6-10 years: 17.7 11-15 years: 8.4 more than 15 years: 13.2 Missing responses-7.

5. What grade(s) are you teaching? Check all appropriate grades.

    1. 6th grade (20.0) 6th & 7th grades (8.2) All 3 grades (44.7)
    2. 7th grade (5.9) 6th & 8th grades (1.2) Missing responses-7.
    3. 8th grade (4.7) 7th & 8th grades (15.3)

6. What is the highest degree you hold?
    1. Less than a Bachelor's degree (0.0)
    2. Bachelor's degree (11.2)
    3. Some graduate work but less than a Master's degree (27.0)
    4. Master's degree (19.1)
    5. More than a Master's degree but not a Doctorate (42.7)
    6. Doctoral degree (0.00)

7. What was your major as an undergraduate?
    1. Education (40.7)
    2. Liberal Arts (20.9)
    3. Education and a discipline area (22.0) : please specify discipline.
    4. Other (16.5) : please specify .

8. What was your major as a masters student?
   1. Not applicable (14.1)
   2. Education (56.5): please indicate speciality.
   3. Liberal Arts (5.9): please specify discipline.
   4. Education and a discipline area (17.6): please specify discipline.
   5. Other (5.9): please specify .
   Missing responses-7.

9. What was your major as a doctoral student?
   1. Not applicable (98.4)
   2. Education (1.6): please indicate speciality.
   3. Liberal Arts (0.0): please specify discipline.
   4. Education and a discipline area (0.0): please specify discipline.
   5. Other (0.0): please specify .
   Missing responses-31.

10. What subject(s) do you teach? (Check all which apply.)
   1. Language Arts (26.5)
   2. Mathematics (22.3)
   3. Science (10.6)
   4. Social Studies (20.0)
   5. Physical Education (1.8)
   6. Other (18.8); please specify.
   Missing responses-7.

11. What language or languages do you teach in? (Check all which apply.)
   1. English (82.8)
   2. Spanish (15.2)
   3. Vietnamese (0.0)
   4. French (0.0)
   5. Haitian-Creole (0.0)
   6. Other (2.0); please specify .

12. Are you responsible for (participate in) any special programs in your school? (Check all that apply.)
   1. No (28.2)
   2. Bilingual (10.0)
   3. Lab School (5.5)
   4. Special Education (20.0)
   5. Gifted-general (3.6)
   6. Special Gifted (2.7)
   7. Supplemental/Remedial (13.6)
   8. Other (16.4); please specify .
   Missing responses-8.

13. In what other capacities do you serve students in the school, formally or informally, besides teaching?
   1. Athletic coaching (8.9)
   2. Career counseling (10.9)
   3. Academic counseling (21.8)
   4. Personal counseling (29.7)
   5. Cluster/team leader (9.9)
   6. Department head (4.0)
   7. Nurse (1.0)
   8. Librarian (0.0)
   9. Other (13.8); please specify.
   9. Other professional role (0.0)

14. **How much say do you have in determining the following issues?**

	Does not apply	A lot		Moderate say		None
A. Your teaching schedule	05.4	08.7	04.3	12.0	10.9	58.7
B. Your room assignment	08.7	02.2	04.3	12.0	06.5	66.3
C. Your cluster or team assignment	12.4	10.1	02.2	12.4	06.7	56.2
D. Your cluster's (team's) leader	11.2	09.0	04.5	06.7	06.7	61.8
E. What courses you teach	10.0	16.7	08.9	14.4	06.7	43.3
F. Which ability levels you teach	13.3	05.6	06.7	12.2	10.0	52.2
G. What content you teach	10.2	31.8	14.8	14.8	04.5	23.9
H. What instructional objectives are set	03.4	37.1	16.9	18.0	06.7	18.0
I. What teaching methods you use	04.4	73.6	14.3	04.4	01.1	02.2
J. What textbooks you use	05.6	20.0	07.8	20.0	17.8	28.9
K. What other materials you use	02.2	56.2	18.0	11.2	05.6	06.7
L. What standardized tests are given	12.4	04.5	0.00	06.7	04.5	71.9
M. What informal tests are given	04.6	60.9	17.2	03.4	02.3	11.5
N. What student grades are assigned	03.4	55.1	13.5	07.9	04.5	15.7
O. Whether students are promoted	02.2	13.2	24.2	25.3	12.1	23.1
P. How students are placed	03.3	11.0	15.4	29.7	13.2	27.5
Q. How teachers are evaluated	05.6	02.2	01.1	00.0	11.2	79.8
R. Who evaluates you	03.3	02.2	01.1	00.0	07.7	85.7
S. When your classes are observed	06.7	02.2	04.4	23.3	15.6	47.8
T. What staff development takes place	05.7	04.6	05.7	17.2	21.8	44.8
U. Which teachers serve on committees	06.7	04.5	07.9	33.7	15.7	31.5
V. Which teachers attend conferences	05.6	01.1	02.2	21.3	09.0	60.7
W. How inservice days are used	00.0	02.2	05.5	15.4	18.7	58.2
X. How professional days are used	01.1	04.4	05.5	13.2	09.9	65.9
Y. How school budgets are spent	02.2	01.1	01.1	06.6	05.5	83.5

15. **Please circle the appropriate number on the 5-point scale to indicate the extent to which teachers in your school exhibit the following behaviors:**

	a lot		sometimes		almost never
A. Engage in social conversation	32.6	19.6	39.1	05.4	03.3
B. Exchange ideas about teaching	18.5	21.7	38.0	12.0	09.8
C. Discuss problems about individual students	40.2	32.6	20.7	04.3	02.2
D. Make negative remarks about other teachers	19.5	10.3	34.5	21.8	13.8
E. Greet each other warmly	25.6	28.9	32.2	08.9	04.4
F. Complain about working conditions	34.8	18.5	29.3	10.9	06.5
G. Joke about difficult situations	25.3	25.3	38.5	04.4	06.6
H. Discuss personal problems with each other	05.7	11.4	45.5	22.7	14.8
I. Share teaching materials	13.3	16.7	46.7	12.2	11.1
J. Discuss suggestions for new school programs	12.0	15.2	33.7	20.7	18.5
K. Insult other teachers directly (missing resp.-45)	04.3	06.4	25.5	23.4	40.4
K. Develop curriculum materials together	02.2	11.0	36.3	20.9	29.7
L. Work on test construction together	02.2	04.4	20.9	16.5	56.0
M. Step in for other teachers in emergencies	29.3	34.8	20.7	12.0	03.3

16. **Please circle the appropriate number on the 5-point scale to indicate the degree of influence each of the following factors, individuals or groups have over decisions about the school's curriculum.**

	a lot		some		almost none
A. Individual teachers	02.2	10.1	28.1	21.3	38.2
B. Groups or clusters of teachers	03.3	13.3	36.7	20.0	26.7
C. Principal	33.0	28.4	13.6	12.5	12.5
D. Tradition (Missing resp.-9)	22.9	22.9	27.7	10.8	15.7
E. District level administrators (Missing resp.-9)	34.9	21.7	15.7	08.4	19.3
F. Central office administrators (Missing resp.-8)	45.2	14.3	14.3	06.0	20.2
G. School committee (Missing resp.-9)	34.9	20.5	15.7	04.8	24.1

17. Please circle the appropriate number on the 5-point scale to indicate first how important each item is for your job satisfaction, and second, how well satisfied you are presently with that aspect of your job.

A. Salary:	Very important	47.8	29.3	19.6	02.2	01.1	Very *Un*important
	Very satisfied	17.4	21.7	33.7	18.5	08.7	Very *un*satisfied
B. Job security	Very important	82.2	10.0	04.5	03.3	00.0	Very *Un*important
	Very satisfied	16.9	11.2	21.3	12.4	38.2	Very *un*satisfied
C. Level of student achievement	Very important	80.2	12.1	05.5	00.0	02.2	very *Un*important
	Very satisfied	05.4	13.0	35.9	27.2	18.5	very *un*satisfied
D. Parent/teacher relationships	Very important	79.1	13.2	03.3	01.1	03.3	Very *Un*important
	Very satisfied	10.9	08.7	22.8	23.9	33.7	Very *un*satisfied
E. Teacher/teacher relationships	Very important	58.2	33.0	04.4	02.2	02.2	Very *Un*important
	Very satisfied	08.7	20.7	43.5	12.0	15.2	Very *un*satisfied
F. Teacher/pupil relationships	Very important	91.2	08.8	00.0	00.0	00.0	Very *Un*important
	Very satisfied	20.7	31.5	28.3	08.7	10.9	Very *un*satisfied
G. Teacher/administrator relationships	Very important	75.6	18.9	03.3	00.0	02.2	Very *Un*important
	Very satisfied	17.6	23.1	25.3	14.3	19.8	Very *un*satisfied
H. The curricula in school	Very important	71.7	22.8	04.3	01.1	00.0	Very *Un*important
	Very satisfied	09.9	22.0	38.5	16.5	13.2	Very *un*satisfied
I. Teacher autonomy	Very important	53.9	34.8	09.0	02.2	00.0	Very *Un*important
	Very satisfied	11.4	26.1	35.2	12.5	14.8	Very *un*satisfied
J. Teacher authority over students	Very important	73.6	24.2	02.2	00.0	00.0	Very *Un*important
	Very satisfied	08.9	23.3	31.1	16.7	20.0	Very *un*satisfied
K. Teacher evaluation procedures	Very important	37.8	26.7	25.6	04.4	05.6	Very *Un*important
	Very satisfied	11.1	11.1	41.1	14.4	22.2	Very *un*satisfied
L. Recognition for teacher achievement	Very important	56.0	28.6	12.1	01.1	02.2	Very *Un*important
	Very satisfied	06.7	18.0	25.8	25.8	23.6	Very *un*satisfied
M. Participation in making decisions	Very important	51.6	39.6	07.7	01.1	00.0	Very *Un*important
	Very satisfied	04.4	07.8	41.1	25.6	21.1	Very *un*satisfied
N. Administrative support in improving student achievement.	Very important	74.4	23.3	02.2	00.0	00.0	Very *Un*important
	Very satisfied	12.4	22.5	33.7	15.7	15.7	Very *un*satisfied

18. Please circle the appropriate number on the 5-point scale to indicate first how successful you think this school has been with regard to *meeting student needs* in the areas listed below, and, second, what priority you think your school should place on that area. If you don't know or if you have no opinion, please leave the item blank.

A. Teaching basic literacy skills	very successful	11.4	23.9	45.5	12.5	06.8	very unsuccessful
	high priority	72.1	18.6	05.8	02.3	01.2	low priority
B. Teaching writing	very successful	11.8	22.4	44.7	14.1	07.1	very unsuccessful
each cat-missing 7	high priority	65.9	20.0	08.2	03.5	02.4	low priority
C. Teaching mathematics	very successful	20.7	22.0	42.7	09.8	04.9	very unsuccessful
each cat-missing 10	high priority	69.5	23.2	06.1	01.2	00.0	low priority
D. Teaching science	very successful	10.0	27.5	41.2	10.0	11.2	very unsuccessful
suc-miss 12, pri-miss 11	high priority	40.7	28.4	22.2	07.4	01.2	low priority
E. Teaching social studies	very successful	15.0	30.0	35.0	13.7	06.3	very unsuccessful
suc-miss 12, pri-miss 13	high priority	41.8	32.9	20.3	02.5	02.5	low priority
F. Teaching computer skills	very successful	36.4	19.5	31.2	10.4	02.6	very unsuccessful
suc-miss 15, pri-miss 16	high priority	39.5	35.5	17.1	07.9	00.0	low priority
G. Teaching thinking skills	very successful	14.6	15.9	26.8	26.8	15.9	very unsuccessful
suc-miss 10, pri-miss 9	high priority	63.9	16.9	08.4	07.2	03.6	low priority
H. Teaching bilingual education	very successful	21.7	21.7	30.0	10.0	16.7	very unsuccessful
each cat-missing 32	high priority	35.0	18.3	21.7	10.0	15.0	low priority
I. Teaching special education	very successful	21.8	38.5	28.2	05.1	06.4	very unsuccessful
suc-miss 14, pri-miss 13	high priority	55.7	24.1	15.2	05.1	00.0	low priority
J. Teaching multicultural education	very successful	13.3	22.7	36.0	14.7	13.3	very unsuccessful
suc-miss 17, pri-miss 18	high priority	35.1	25.7	21.6	09.5	08.1	low priority
K. Teaching art and music	very successful	05.5	12.3	26.0	19.2	37.0	very unsuccessful
suc-miss 19, pri-miss 21	high priority	26.8	21.1	32.4	02.8	16.9	low priority
L. Teaching the gifted and talented	very successful	12.5	29.2	15.3	23.6	19.4	very unsuccessful
suc-miss 20, pri-miss 19	high priority	34.2	32.9	20.5	04.1	08.2	low priority
M. Teaching moral/ethical values	very successful	14.1	10.3	24.4	23.1	28.2	very unsuccessful
suc-miss 14, pri-miss 13	high priority	46.8	15.2	25.3	06.3	06.3	low priority
N. Teaching social courtesies	very successful	10.0	10.0	30.0	22.5	27.5	very unsuccessful
each cat-missing 12	high priority	45.0	25.0	20.0	03.7	06.3	low priority
O. Promoting students self esteem	very successful	15.7	21.7	36.1	19.3	07.2	very unsuccessful
suc-miss 9	high priority	59.3	18.6	17.4	03.5	01.2	low priority
P. Providing occupational	very successful	08.2	09.6	30.1	26.0	26.0	very unsuccessful
counseling	high priority	29.7	23.0	27.0	12.2	08.1	low priority
suc-miss 19, pri-miss 18							
Q. Providing educational	very successful	07.9	27.6	25.0	19.7	19.7	very unsuccessful
counseling	high priority	38.2	31.6	15.8	10.5	03.9	low priority
each cat-missing 16							

18. (Cont.) Again, please circle the appropriate number on the 5-point scale to indicate first how successful you think this school has been with regard to *meeting student needs* in the areas listed below, and second, what priority you think your school should place on that area. If you don't know or if you have no opinion, please leave the item blank.

R.	Making rooms/corridors attractive	very successful	23.6	27.0	28.1	10.1	11.2	very unsuccessful
		high priority	40.9	33.0	18.2	03.4	04.5	low priority
S.	Providing general health education suc-miss 12, pri-miss 14	very successful	10.0	28.7	26.2	18.8	16.2	very unsuccessful
		high priority	38.5	34.6	14.1	07.7	05.1	low priority
T.	Providing nutritious meals pri-miss 9	very successful	24.4	23.3	23.3	04.7	24.4	very unsuccessful
		high priority	42.2	24.1	19.3	02.4	12.0	low priority
U.	Providing a drug education program	very successful	25.3	29.9	21.8	09.2	13.8	very unsuccessful
		high priority	54.0	26.4	12.6	01.1	05.7	low priority
V.	Providing an AIDS education program suc-miss 12, pri-miss 10	very successful	16.2	20.0	22.5	18.8	22.5	very unsuccessful
		high priority	48.8	23.2	18.3	03.7	06.1	low priority
W.	Providing a sex education program suc-miss 16, pri-miss 9	very successful	09.2	11.8	22.4	28.9	27.6	very unsuccessful
		high priority	39.8	20.5	19.3	10.8	09.6	low priority
X.	Providing pregnancy counseling suc-miss 17, pri-miss 12	very successful	08.0	10.7	18.7	20.0	42.7	very unsuccessful
		high priority	33.7	20.0	20.0	12.5	13.7	low priority
Y.	Providing referrals to social service agencies suc-miss 17,pri-miss 13	very successful	22.7	21.3	34.7	10.7	10.7	very unsuccessful
		high priority	45.6	26.6	20.3	05.1	02.5	low priority
Z.	Providing positive role models each cat-missing 9	very successful	21.7	32.5	31.3	09.6	04.8	very unsuccessful
		high priority	48.2	31.3	13.3	06.0	01.2	low priority
a.	Providing a safe, orderly environment	very successful	21.1	40.0	14.4	12.2	12.2	very unsuccessful
		high priority	70.8	19.1	06.7	01.1	02.2	low priority
b.	Creating a caring environment	very successful	26.7	32.2	28.9	07.8	04.4	very unsuccessful
		high priority	65.9	18.2	10.2	04.5	01.1	low priority
c.	Showing concern for students' personal needs	very successful	22.5	33.7	32.6	06.7	04.5	very unsuccessful
		high priority	59.8	23.0	11.5	03.4	02.3	low priority
d.	Setting high expectations for students	very successful	14.6	28.1	34.8	14.6	07.9	very unsuccessful
		high priority	54.5	28.4	11.4	03.4	02.3	low priority
e.	Involving parents in student learning	very successful	08.9	14.4	26.7	27.8	22.2	very unsuccessful
		high priority	58.1	22.1	05.8	05.8	08.1	low priority

Your answers are really important. Please keep going. And thank you!

19. Please circle the appropriate number on the 5-point scale to indicate how often you use the following methods in your teaching:

	a lot		sometimes		almost never
A. Teacher lecturing to the whole class	17.0	31.8	35.2	10.2	05.7
B. Teacher leading discussion among whole class	23.6	31.5	38.2	04.5	02.2
C. Teacher visiting small groups within the class	32.2	27.8	22.2	11.1	06.7
D. Teacher giving demonstration with equipment	19.3	23.9	22.7	13.6	20.5
E. Students giving presentations to the class	03.4	23.9	29.5	22.7	20.5
F. Students discussing problems in small groups	12.5	26.1	29.5	13.6	18.2
G. Students writing papers, stories, assignments	44.2	17.4	23.3	08.1	07.0
H. Students filling in workbooks or exercise sheets	20.2	29.2	37.1	06.7	06.7
I. Students measuring, collecting data (Miss. resp-9)	10.8	22.9	31.3	16.9	18.1
J. Students creating things (Missing resp.-11)	23.5	22.2	29.6	11.1	13.6
K. Students working in laboratories (Miss. resp.-18)	12.2	08.1	05.4	04.1	70.3
L. Students taking supervisied field trips (Miss resp-8)	09.5	10.7	33.3	15.5	31.0
M. Students working all on the same lesson	26.4	23.0	36.8	03.4	10.3
N. Students walking about the room (Missing resp.-7)	04.7	09.4	30.6	18.8	36.5
O. Whole class working together	31.5	23.6	39.3	03.4	02.2
P. Students working on a project of their choice	11.5	20.7	41.4	14.9	11.5

20. How important are each of the following factors in determining teaching objectives for your students?

	very important		somewhat important		very unimportant
A. School policy	28.1	21.3	30.3	12.4	07.9
B. Student Interest	42.2	31.1	16.7	10.0	00.0
C. Individual student ability	57.1	31.9	07.7	03.3	00.0
D. Your personal preference	15.9	29.5	39.8	11.4	03.4
E. Available textbooks	42.7	23.6	15.7	10.1	07.9
F. Other available resources	38.6	23.9	26.1	06.8	04.5
G. What will be tested	21.6	25.0	35.2	05.7	12.5

21. Circle the appropriate number on the 5-point scale to indicate the degree to which each of the following behaviors is typical of students in your school. Also, please give a recent example of each.

	never happens				very typical
A. Student volunteering Example: (Missing resp.-11)______	03.7	14.8	21.0	27.2	33.3
B. Student involvement in decision making Example: (Missing resp.-12)______	23.7	21.2	31.3	17.5	06.3
C. Taking care of school property Example: ______	10.3	25.3	44.8	12.6	06.9
D. Tolerating others Example: ______	01.2	18.6	53.5	19.8	07.0
E. Making friendships across racial and ethnic groups Example: ______	01.1	14.8	31.8	23.9	28.4
F. Showing respect for teachers Example: ______	03.4	23.9	43.2	20.5	09.1
G. Showing appreciation of teachers Example: ______	10.1	27.0	37.1	15.7	10.1
H. Showing interest in learning Example: ______	03.4	22.5	46.1	20.2	07.9
I. Helping other students learn Example: ______	03.4	11.4	52.3	22.7	10.2
J. Participating in extracurricular activities Example: ______	01.2	15.1	45.3	26.7	11.6
K. Complimenting other students for good work Example: ______	06.9	34.5	31.0	19.5	08.0

22. Circle the appropriate number on the 5-point scale below to indicate the degree to which each of the following behaviors is typical of students in your school. Also, please give a recent example of each.

	no problem/ never happens				very typical
A. Stealing	04.5	35.2	27.3	17.0	15.9
Example: ____________________ ____________________ ____________________					
B. Destruction of school property	02.2	25.8	27.0	22.5	22.5
Example: ____________________ ____________________ ____________________					
C. Sex offences (Missing responses - 15)	22.1	42.9	26.0	03.9	05.2
Example: ____________________ ____________________ ____________________					
D. Impertinence and discourtesy to teachers	02.3	11.5	21.8	29.9	34.5
Example: ____________________ ____________________ ____________________					
E. Meanness and bullying between students	01.1	13.6	30.7	34.1	20.5
Example: ____________________ ____________________ ____________________					
F. Fighting	00.0	22.7	35.2	23.9	18.2
Example: ____________________ ____________________ ____________________					
G. Racial incidents (Missing responses - 7)	16.5	43.5	29.4	08.2	02.4
Example: ____________________ ____________________ ____________________					
H. Truancy	02.3	19.8	32.6	24.4	20.9
Example: ____________________ ____________________ ____________________					

	no problem/ never happens				very typical
I. Physical violence against teachers Example: ______	11.1	47.8	30.0	08.9	02.2
J. Using profane or obscene language Example: ______	02.2	14.6	20.2	19.1	43.8
K. Using illegal drugs (Missing responses - 17) Example: ______	29.3	38.7	21.3	04.0	06.7
L. Drinking alcohol (Missing responses - 19) Example: ______	42.5	35.6	15.1	02.7	04.1
M. Cheating on tests (Missing responses - 9) Example: ______	03.6	28.9	41.0	19.3	07.2
N. Creating classroom disorder or chaos. Example: ______	04.5	20.5	33.0	23.9	18.2
O. Smoking in school (Missing responses - 14) Example: ______	30.8	51.3	11.5	05.1	01.3

23. What is your job? Please rank order the following in terms of their importance, "1" being most important, "5" being least important.

1. to help students learn
   1: 79.5 2: 11.4 3: 04.5 4: 03.4 5: 01.1

2. to be a friend to students (Missing responses - 10)
   1: 02.4 2: 15.9 3: 24.4 4: 46.3 5: 11.0

3. to teach values to students (Missing responses - 14)
   1: 11.5 2: 60.3 3: 21.8 4: 06.4 5: 00.0

4. to take care of students (giving counseling, medical, social, or other services) (Missing responses-19)
   1: 12.3 2: 17.8 3: 37.0 4: 30.1 5: 02.7

5. other; please specify . (Missing responses - 73)
   1: 21.1 2: 05.3 3: 15.8 4: 10.5 5: 47.4

24. What do you think your job should be? Please rank order the following in terms of their importance, "1" being most important, "5" being least important.

1. to help students learn (Missing responses - 7)
   1: 85.9 2: 09.4 3: 02.4 4: 01.2 5: 01.2

2. to be a friend to students (Missing responses - 15)
   1: 02.6 2: 13.0 3: 29.9 4: 46.8 5: 07.8

3. to teach values to students (Missing responses - 17)
   1: 09.3 2: 65.3 3: 18.7 4: 06.7 5: 00.0

4. to take care of students (giving counseling, medical, social, or other services) (Missing responses-22)
   1: 04.3 2: 12.9 3: 45.7 4: 31.4 5: 05.7

5. other; please specify. (Missing responses - 74)
   1: 16.7 2: 16.7 3: 05.6 4: 16.7 5: 44.4

25. What do you think the principal's job should be? Please rank order the following in terms of their importance, "1" being most important, "5" being least important.

1. to discipline the students
   1: 10.5 2: 16.3 3: 15.1 4: 20.9 5: 37.2

2. to supervise the teachers (Missing responses - 7)
   1: 09.4 2: 10.6 3: 25.9 4: 31.8 5: 22.4

3. to lead curriculum and program planning (Missing responses - 7)
   1: 21.2 2: 32.9 3: 25.9 4: 11.8 5: 08.2

4. to oversee school operations and scheduling (Missing responses - 8)
   1: 58.3 2: 22.6 3: 10.7 4: 07.1 5: 01.2

5. to provide resources to teachers (Missing responses - 15)
   1: 09.1 2: 26.0 3: 26.0 4: 22.1 5: 16.9

26. Please rank order what you like most about teaching in this school?

1. the students FIRST
2. the teachers SECOND
3. the principal THIRD
4. the physical environment TIED WITH "OTHER"
5. other; please specify. TIED WITH "PHYSICAL ENVIRONMENT"

27. Please rank order what you would like to change in this school?

1. student assignments SECOND
2. the teaching staff FOURTH
3. the principal THIRD
4. the physical environment FIRST
5. other; please specify. FIFTH

28. Do you particpate in planning and decision making when you have the opportunity to do so? (Missing responses - 8)

never				a lot
06.0	04.8	41.7	22.6	25.0

29. Do you participate in committees within your school besides cluster meetings? (Missing responses - 7)

never				a lot
20.0	14.1	25.9	22.4	17.6

30. Do you participate in district or system wide committees?

never				a lot
40.7	26.7	20.9	04.7	07.0

31. How are these opportunities comunicated to you? Please check all that apply.

1. word of mouth (other teachers) (82.6)
2. staff meetings (75.0)
3. loud speaker/intercom (52.2)
4. notices posted on a board (38.0)
5. mass mailings to all teachers (16.3)
6. personal request or invitation by leader (5.4)
7. other (1.1)

32. Do you participate in any professional development activity outside of your work for the Boston Public Schools?

Yes (56.3) No (43.8) Missing responses - 12

If yes, please specify______________________________

33. Do you think this middle school has some special characteristics distinguishing it from other middle schools?

Yes (77.9) No (22.1) Missing responses - 15

b. If yes, would you please note briefly what you think those characteristics are?

34. Please provide any other comments which you think should be added to this questionnaire.

You've finished! Thanks a lot! You'll be hearing from us with the results.

APPENDIX A.3

EXAMPLES OF PROSOCIAL AND ANTISOCIAL STUDENT BEHAVIORS PROVIDED BY TEACHERS IN THE TEACHER QUESTIONNAIRE

PART I: PROSOCIAL BEHAVIORS

A. Student Volunteering

-Student Council projects
-Baking, decorations, Valentines
-Local nursing home, Aids unit, Pine St. Inn
-Multicultural festival-students doing flowers, dressing, all voluntary
-A boy asking me if he could do a puzzle map of South America
-To work in cafeteria
-A girl volunteered to take a message to the dean.
-Decorations for hall bulletin boards
-Pass out work
-Open House, Evening Escorts
-Students in class often volunteer to help teacher
-Keeping school clean*
-Students voluntarily participate only after they have been promised a reward
-Decorate the auditorium in another school/talent show
-Water at Boston Marathon
-To run errands, to answer questions
-Students are eager to volunteer sometimes for altruistic reasons but often times to enhance their own self-esteem
-Volunteers for oratorical contest

B. Student Involvement in Decision Making

-Student Council representatives
-Change in school format. No students asked.
-Deciding test date
-They are too irresponsible
-Many seem to like and be able to cooperate to make decisions as a class, re: project theme
-Vote on how will do an assignment
-Community meetings
-Student discussion to solve problems*, debates
-Where to go on fieldtrips/where to eat on fieldtrips
-How to decorate classroom

C. Taking Care of School Property

-Books still suffer while graffiti has gone down
-Bathroom clean up
-Arranging desks, washing floor
-Willingness to clean room
-Cleaning school*
-Voluntary painting
-Students cleaning before Open House
-Cleaning** up painting
-Using computer, each student is responsible for the computer he or she is using. It is checked after each class.
-Caring about each other
-Only if asked to pick up paper, etc.

D. Tolerating Others

-Refrain from fighting
-Asking one person to work together with another
-Live and let live is the usual attitude although there is the one boy this year who is the "goat"
-Within my class, students are tolerant of acting out behaviors of one particular boy.
-A group of students allow a non-English speaking child to receive help in English while they work alone daily.
-At least seem to know or say "Let's get along" in presence of teachers. Observed some cruel pupil to pupil interactions
-Rare arguments
-Pupils ignore wise cracks
-The kids seem to get along well
-When a death in family
-Ignoring difficult behavior
-Helping others with social problems
-Yes, for the sake of a peaceful environment
-This is subjective, rather objective. Cannot generalize

E. Making Friendships Across Racial and Ethnic Groups

-School has been integrated for over 20 years. Its no big deal
-Field trips, class activities and mainstream activities
-I see it all the time
-White-black friends
-I sometimes choose children from different ethnic backgrounds to work together
-These seem to last only during the school day. Only one or two inter-racial relations seem to endure outside of school
-Except with Vietnamese-they keep to themselves

-New girl (black) and Hispanic girl are friends. Latter one has shown former one around bldg. and they arrive at class together
-Rarely done
-Some progress
-Students not racially problematic
-My classes are mixed ethnic groups
-All races work together on a project
-Especially after classes on racism
-Helping one another with a difficult lesson
-Sports
-Black/hispanic relationships occur but no black/white, black/vietnamese occur
-In classes, in shows
-Students help with projects and share ethnicity during class
-Black and white friends-calling home, exchanging numbers
-Peer racial harmony
-Depends upon rapport students have with each other. Not a conscious decision
-Yes, from what I've seen-no racial problems

F. Showing Respect for Teachers

-Most students greet teachers respectfully
-Saying please when asking for something
-50-50-Some are excellent, others answer the teachers in rude, obnoxious manners
-A student complimented a teacher on appearance
-Observed and experienced some
-No problems
-Hold door, say hello!
-Disrespectful in tone and choice of address (Man! Yo!)
-Again moderating behavior when teacher returned after a death in family
-Working together
-Speak when spoken to, listen to teacher
-When demanded

G. Showing Appreciation of Teachers

-Classroom disruption
-Students gave me flowers for Mother's Day
-Helping
-Bringing in plants/flowers
-Concern over impending lay-offs
-Never!
-Kidding around (tongue-in-cheek) about age, gray hair, etc.
-A student gave a Christmas card to a teacher
-Visits after graduation
-Say thank you! Smile
-They enjoy to learn about other talents you may have.
-Thanking for a class
-Kids saying Thank-you" for fieldtrip

-Offer to make get well or thank you cards & B-day
-Some small gifts, chips, candy
-With good behavior
-Sometimes seen a student hugging a teacher

H. Showing Interest in Learning

-Other kids asking to attend field trips/speakers for my classes
-Volunteering for special projects
-Those who wish to go to an Exam School
-My students show some interest
-A group of four students follow directions, respond and do assignments. They all have a good disposition and are seldom cantankerous
-6th graders especially eager
-Advanced class projects
-Love to win prizes, get into Latin etc.
-These kids do not want to learn. All they talk is sex, basketball, fighting and sex.
-Active participation in class
-Excited when the computer tells them they have done a good job
-Doing work
-Wanting to learn another language
-Sitting attentively
-Yes, with lesson completion
-Very oftentimes students are easily distracted & learning is put at the bottom of their agenda
-For Science fair projects

I. Helping Other Students Learn

-Work in group and individual work projects
-In cooperative learning, they help each other a lot*
-Wang Lab
-A group of of our students often assist each other in understanding words and sharing dictionaries.
-Quite willing to share knowledge of computers
-Peer tutoring
-Often help each other in writing
-Some bilingual kids help other kids with their Spanish
-Working in group projects
-Student volunteering to help others who are having difficulty
-When one student finishes finishes their work, sometimes helps another

J. Participating in Extracurricular Activities

-Sports, Dance Program
-Field Trips
-Lots of students in festival, talent show, team,...
-Baseball club, trip to Fenway Park
-Basketball & track.* Need much more*

-Sports** and clubs
-Computer club**
-Track; film club; sports/interscholastic
-Basketball** enthusiasm
-After school ACT Program
-Generally students enjoy after-school sports; a chance to release energy in a constructive way

K. Complimenting other students for good work

-Written Awards, Certificates, Audio visual activity
-Several kids pass to Latin School. No students say anything to those going.
-If work is neat, I show class paper as example of what work should be, or I compliment the person
-Clapping for winners of contests
-Recent competitions
-I've never seen it*
-When tests are returned
-Some, more respond by copying
-Rare
-Clap when one or other pupils win an award
-Talent show, exciting hair-do
-Yes, saying a piece of artwork is good even though they didn't like the student who did it
-Support* and encouragement
-Competitive lesson achievement
-Everyday in my room

PART II: ANTISOCIAL BEHAVIORS

A. Stealing

-Money** and objects from parents
-Money from teachers' wallets
-Had some camera film stolen from me yesterday
-$50 stolen from 8th grade fund
-Stealing white lined paper
-Others' pencils**-money*-even a teacher's sandwich
-Other students' supplies, VCR, tape recorder
-Pens, magic markers, etc., were removed from an absent teacher's desk
-Calculators
-Very seldom
-Not often in my class, but does happen in school
-Ghost will pocket any unclaimed property/money
-Teacher's wallet
-Children's work
-My phone has been stolen, money, computers from school, numerous break-ins

-Teachers' bags
-Keep pocketbook in middle of desk so dishonest and honest student keep an eye on it
-A teacher's leather coat was stolen

B. Destruction of School Property

-Graffiti
-Books, graffiti on school walls**, classroom glass doors
-Many textbooks have pages torn out
-We have very distructive kids in the building
-Write on desks*****-No care of books**, will write or tear them, lose them- Write on walls*
-Rare graffiti**
-Broken windows, graphity, etc.
-Destroying pencils, wasting paper
-My office was destroyed last Sept.

C. Sex Offenses

-Hands all over pretty girls
-Obscene jestures, touching/rape and obscene language
-Last was in December, two boys molested a girl
-Patting girls on breast or fanny-obscene remarks and pictures
-Boys touching girls** while filing*
-Have seen leuod behavior
-Verbal and occasional unwarranted touching
-It seems to be a game among them
-Touched a staff's breast
-Feeling another student in private places*, verbal suggestions
-Inappropriate gestures*
-A girl was raped on the way to school
-Once a student of mine was coming down the stairs, a boy pushed her into the auditorium and felt her breasts

D. Impertinence and Discourtesy to Teachers

-Disrespectful in tone and choice of address (Man! Yo!)
-Lot of mouthy behavior by even best kids toward teachers they don't know
-Punching and kicking doors
-Shouting at teachers and answering with sarcastic remarks
-Name calling
-Use of foul language
-I have been asked to Fuck myself on various occasions
-Students try their best to abuse teachers
-Constant teacher baiting-typical "You didn't tell me not to do it-you told him"
-In classrooms & hallways especially toward teachers who they do not have in class.

-Every day!
-A boy swore at a teacher in Spanish. He said the equivalent of "ass hole"
-Lots of back-talk when reprimanded and general bad attitude toward adults
-Refusing to throw gum away
-Regular teachers have no problem, Substitute teachers have problem*
-With regards to gum/fighting
-An attitude of disrespect toward all authority
-These kids have no manners
-"Fuck you"*
-Telling teachers to shut-up*, cursing teachers*
-Bad mouthing

E. Meanness and Bullying Between Students

-Some students calling each other names, making fun of the way he or she dresses
-One good slap deserves another is the motto in this school
-Lots of "he said, she said" meanness that leads to fights/arguments among some of our girls
-Threats, verbal assault
-One kid hit other in face opening skin because of a rumor
-Constant extortion of money
-Especially during filing
-A boy in the lunchroom kept pushing another boy in the face
-Especially in lab and sub. sep. classes who see one another all day and don't change classes
-Not regularly*
-Towards shy types
-Unless constantly observed and monitored and disciplined
-Girls beating small boys
-Throwing a kid down a staircase
-Pushing, grabbing others
-Kids are mean to others especially when not wearing the right clothes
-Saying mean things loudly
-Capping
-Just tease-fatso

F. Fighting

-Almost daily*
-A boy was suspended for fighting with a girl. He hit her, punched and kicked her.
-Not too often. More verbal than physical competition
-Fighting over girlfriends
-Usually outside of school
-Peer pressure, petty jealousies
Occasionally over a silly problem
-It is a way of life, but not excessive
-Everyday practice
-Fighting because of trivial reasons*, "She looked at me wrong"

-Gang wars planned after school
-Once in a while

G. Racial Incidents

-Youngsters from P.R. and Dominican Republic challenge each other, fight outside school, racial slurs
-Hispanic and black girls fighting in gym and shop. They don't like way other walks, or dresses, ...
-Asian slurs are frequent-directed at Asians by white/black/hispanic
-Spanish/Vietnamese, Spanish/Black, Black/Vietnamese
-A black boy and a Puerto Rican boy called each other "nigger" and "spic"
-Haven't witnessed physical confrontations but hear some put-downs
-Rare, but if it takes place it is usually between black pupils
-I have never seen that
-Students when angry accuse students of racism
-Open insult
-Not much anymore

H. Truancy

-Parents cover for kids and/or have no control and don't initiate action. School must.
-Babysitting younger brother or sister or working
-Marcos cut homeroom yesterday
-Parents don't care or have no control and/or nothing of any consequence is done to parent or student.
-Luz Quiles (14) lives with her boyfriend, mother doesn't know address
-Not sure how much is excused as absences, same kids at risk
-One student has attended only 3 of last 50 school days
-Students rarely are truant
-Late, absent with no excuse note
-One student comes to school when feels like it
-Hiding from class
-One student was absent a lot

I. Physical Violence Against Teachers

-Punching and hitting, throwing objects
-One teacher was hit by student
-If teacher should demand a student to do something he doesn't wish to do, will hit, punch or push
-Within my own classroom
-A boy pushed the teacher when she tried to straighten the standing board which he had pushed aside.
-Breaking up fights is risky. Verbal threats heard, have seen no contact
-Some classes, especially SPED
-3 or 4 court cases this year
-A student kicked me once

-Restraint necessary
-Once I got hit trying to stop a fight
-Out of school
-Many times teachers have been hit or bitten

J. Using Profane of Obscene Language

-Fuck you, Mother Fucker
-In class when there is an argument between students
-Boy telling girl "Fuck You", Sent for parent, Seems to be a problem which is increasing!
-This is part of everyday speech
-It is part of a normal conversation which that they hear at home
-Almost seems like it's part of the school curriculum
-It can be heard when the students come out of school at dismissal. Such words as "fuck" and "suck" are common.
-Constantly without even knowing what they're saying-not just in anger either.
-Corridors are filled with obscene dialogue between students
-Anger situations
-Try to not let this happen by not allowing pupils to speak when angry
-Even "nice" girls routinely use the common obscenities (not mild ones either!)
-Fuck you", suck my dick
-Swearing at teachers, I'm going to wreck you
-Swear words to friends
-Like breathing

K. Using Illegal Drugs

-Cigarettes, inhaling from pen tube
-Outside school, is happening a lot
-Hard to prove
-Some do but not in school, that I know of.
-Question use by a few students, hear some talk of it
-Only hearsay
-Lunch
-A lot of kids use or deal drugs

L. Drinking Alcohol

-Smell of alcohol
-Outside school. Minors can buy alcohol and cigarettes in streets
-Before school
-Seems familiar to many in discussions or off hand comments
-Hearsay "I've got a hangover"
-Not usually in school but many times the night before

M. Cheating on Tests

-Kids don't know asking questions of each other
-Look at someone else's answer or talking
-Sometimes a child will open a book inside desk
-Looking on another's paper or giving the answers to another
-They don't care
-Not observed, as they are watched
-Have caught several
Occasionally*
-In competitive situations
-Apathy prevails over disposition
-Copying papers
-Spelling

N. Creating Classroom Disorder or Chaos

-Depends upon teacher
-Running and yelling
-Sometimes students with pens
-Sit on desk-walk around the room-yell at teacher- then ignore the teacher* when reprimanded-this happens when the rest of the class enjoys the diversion
-Especially with inexperienced teachers. They're not here to learn, they're here for a free lunch!
-Passing notes
-Same kids, every class has some
-If called to office, classroom is unattended
-Lower academic levels
-Usually remove student to another room
-Special Ed. kids can be repetitive
-Farting*, laughing, etc.
-Talking loudly, being disruptive
-Looking out windows, walking around
-Talk a lot

O. Smoking in School

-Anti-smoking campaigns are working
-Bathrooms and buses
-Never encountered this
-Have seen none
-A handful of students
-Hearsay!
-Usually not during school

*Items marked with one or more asterisks were mentioned by several teachers.

1	2	3	4	5	6	7	8	9	10	11

STUDENT QUESTIONNAIRE
SCHOOL CLIMATE STUDY

This questionnaire is part of a study being carried out to learn more about what it is like to be a student in a middle school.

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CHECKING THE BOX NEXT TO THE CORRECT ANSWER OR FILLING IN THE BLANK. IGNORE THE BRACKETED NUMBERS ON THE LEFT.

[12] 1. Are you male or female? ( ) 1. male ( ) 2. female

[13],[14] 2. How old are you? ______________years old.

[15],[16] 3. What race/ethnic group(s) do you belong to?

( ) 1. Asian
( ) 2. Black
( ) 3. Caucasian (white)
( ) 4. Hispanic
( ) 5. Native American
( ) 6. Other; please specify __________________

[17],[18],[19] 4. How many years have you been at this school?________years

[20] 5. What grade are you in?

( ) 1. Sixth grade
( ) 2. Seventh grade
( ) 3. Eighth grade

[21],[22],[23] 6. Check if you are in any special program in this school?

( ) 1. No
( ) 2. Bilingual
( ) 3. Lab Class/ Cluster
( ) 4. Special Education - Resource Room
( ) 5. Advanced Work Class
( ) 6. Chapter 1 - Reading
( ) 7. Chapter 1 - Math
( ) 8. Targeted Reading
( ) 9. Sports
( ) 10. Other; please specify ______________________________

[24] 7. Do you think it is important to come to school?

( ) 1. Yes
( ) 2. No

[25] 8. How do you get to school on **most** days? *(Check ONE answer only)*

( ) 1. School bus
( ) 2. The T
( ) 3. Car
( ) 4. Walk

[26],[27],[28] 9. Check the **three (3) most** important reasons why you come to school.

( ) 1. To learn
( ) 2. To see my friends
( ) 3. To get into college
( ) 4. To participate in sports
( ) 5. To get a job in the future
( ) 6. To get breakfast and lunch
( ) 7. For something to do
( ) 8. Because my parents make me
( ) 9. Because it's nicer than home
( ) 10. Because I like a certain teacher
( ) 11. Because I like a certain class

[29] 10. In general, are you happy about your life?

( ) 1. Yes, very much
( ) 2. Yes, sometimes
( ) 3. No, not at all.

[30] - [55] 11. How do you spend **most** of your time **after school**? (Write the number of hours on the line next to each activity. If no hours, write 0.)

____ 1. Work outside the home
____ 2. Do chores
____ 3. Do homework
____ 4. Afterschool program
____ 5. Watch TV/videos
____ 6. Play video games
____ 7. Go out with my friends
____ 8. Read
____ 9. Play sports
____ 10. Take lessons (dance, art, music, language, etc.)
____ 11. Play music
____ 12. Hang out
____ 13. Other; please specify ______________________________

[56] - [80] 12. How do you spend **most** of your time on **weekends**? (Write the number of hours on the line next to each activity. If no hours, write 0.)

____ 1. Work outside of the home
____ 2. Do chores at home
____ 3. Do homework
____ 4. Watch TV/videos
____ 5. Play video games
____ 6. Hang out
____ 7. Go to the mall/shopping
____ 8. Go to the movies
____ 9. Go to church, temple, or mosque
____ 10. Play sports
____ 11. Take lessons (dance, music, language, etc.)
____ 12. Play music
____ 13. Other; please specify ______________________________

[81] - [83] 13. How did you spend **most** of your time last summer?
(Check three(3) ways)

( ) 1. Work outside the home
( ) 2. Help around the house
( ) 3. Go to summer school
( ) 4. Go to camp
( ) 5. Play sports
( ) 6. Travel
( ) 7. Stay home
( ) 8. Watch TV/videos
( ) 9. Play video games
( ) 10. Hang out
( ) 11. Other; please specify ______________________________

[84] 14a. Do you have a **job** outside the home?

( ) 1. Yes
( ) 2. No *(If no, please go on to question #15a)*

[85],[86] 14b. If yes, how many hours do you work? _____hours/week

[87] 15a. In the last year, have you done any **volunteer work** (helping a good cause for no pay)?

( ) 1. Yes
( ) 2. No *(If no, please go on to question #16)*

[88] 15b. If yes, what was it? ________________________________

[89] 15c. If yes, how many times did you do it?

( ) 1. Weekly
( ) 2. Monthly
( ) 3. A specific number of times. How many?__________

[90] 16. My parents (or guardians) think that school is:

( ) 1. Very important
( ) 2. Important
( ) 3. Not important

[91] - [93] 17. Have your parents (or guardians) visited the school this year?

( ) 1. Yes; why? ______________________________
( ) 2. No; why not? ___________________________

[94],[95] 18. What language or languages do you speak at home?

____
____
____

[96] - [98] 19. Check the three (3) most important adults in your life.

( ) 1. Mother
( ) 2. Father
( ) 3. Other relative; who? ______________________
( ) 4. A teacher
( ) 5. A coach
( ) 6. Other; who? ______________________________

[99],[100] 20. What are most of your grades like in your classes?

( ) 1. A's
( ) 2. B's
( ) 3. C's
( ) 4. D's
( ) 5. F's

[101] - [103] 21. What do you think the **teacher's job** is in this school? *(Check the three(3) most important things.)*

( ) 1. To help us learn
( ) 2. To be our friend
( ) 3. To teach us right from wrong
( ) 4. To take care of us
( ) 5. To make us behave
( ) 6. Other; please specify ____________________

[104] - [106] 22. What do you think the **principal's job** is in this school? *(Check the three(3) most important things.)*

( ) 1. To run the school
( ) 2. To help the teachers
( ) 3. To help the students
( ) 4. To make students behave
( ) 5. To be the teachers' boss
( ) 6. To make sure that students are safe
( ) 7. Other; please specify ____________________

[107] - [109] 23. What do you think the **student's job** is in this school? *(Check the three(3) most important things.)*

( ) 1. To get an education
( ) 2. To learn about other cultures
( ) 3. To get along with others
( ) 4. To do my best
( ) 5. To study hard
( ) 6. To help others
( ) 7. To help make decisions in school
( ) 8. Other; please specify ____________________

[110] 24. If you had a serious personal problem, is there any adult in this school you would go to for help? *(Check* ***ONE*** *answer only)*

( ) 1. No
( ) 2. Teacher
( ) 3. Guidance Counsellor
( ) 4. Nurse
( ) 5. Director of Instruction
( ) 6. Principal
( ) 7. Coach
( ) 8. Other; please specify ______________________

[111] 25. Are the rules of discipline of this school clear to you?

( ) 1. Yes ( ) 2. No

[112] 26. In the last year, have you been suspended?

( ) 1. Yes ( ) 2. No

[113] - [115] 27. What does this school expect you to do? (Check three(3) things)

( ) 1. To study hard
( ) 2. To get along with others
( ) 3. To do my best
( ) 4. To get good grades
( ) 5. To help others
( ) 6. To behave

[116] 28. In the last year, have you been punished by your teachers?

( ) 1. Never
( ) 2. Sometimes
( ) 3. A lot

[117] 29. How do **most teachers** in this school punish students?
(Check ONE answer only)

( ) 1. Keep students after school/class
( ) 2. Give students extra work
( ) 3. Send students to the principal's office
( ) 4. Keep students from recess and gym
( ) 5. Talk to students privately
( ) 6. Talk to students in front of everyone
( ) 7. Yell at students
( ) 8. Other; please specify ____________________

[118] 30a. In the last year, has the **school** presented you with anything for doing well?

( ) 1. Yes
( ) 2. No *(If no, please go on to question #31)*

[119] - [121] 30b. If Yes, what was it for?

( ) 1. Academics
( ) 2. Sports
( ) 3. Music
( ) 4. Art
( ) 5. Drama
( ) 6. Other; please specify ______________________________

[122] - [126] 31. Check the special things **teachers** do for students when they do well. *Check all that apply)*

( ) 1. Give out small but fun prizes
( ) 2. Put up my work in the room
( ) 3. Send nice letters home
( ) 4. Write nice comments on tests and homework
( ) 5. Other; please specify ________________________

[127] 32a. Have you been rewarded by your **teacher** for doing well?

(   ) 1. Yes
(   ) 2. No *(If no, please go on to question #33)*

[128] - [130] 32b. If yes, what was it for?

(   ) 1. Classwork
(   ) 2. Homework
(   ) 3. Tests
(   ) 4. Good conduct
(   ) 5. Helping out
(   ) 6. Other; please specify ____________________

[131] - [133] 33. Do you like to come to school?

(   ) 1. Yes; why? ____________________
(   ) 2. No; why not? ____________________

[134] - [136] 34. Do you feel safe at school?

(   ) 1. Yes; why? ____________________
(   ) 2. No; why not? ____________________

You're doing a great job! Keep going!

35. Please circle the number below to show how important the following items are to you.

		not important		sort of important		very important
[137]	A. Family	1	2	3	4	5
[138]	B. Being rich	1	2	3	4	5
[139]	C. Friends	1	2	3	4	5
[140]	D. Future education	1	2	3	4	5
[141]	E. Having fun	1	2	3	4	5
[142]	F. Getting good grades	1	2	3	4	5
[143]	G. Feeling safe	1	2	3	4	5
[144]	H. Helping others	1	2	3	4	5
[145]	I. Having a job now	1	2	3	4	5
[146]	J. Future job	1	2	3	4	5

36. Please circle the number below to show how students act in your school.

	Students:	*never happens*		*happens sometimes*		*happens a lot*
[147]	A. Help out at school	1	2	3	4	5
[148]	B. Help plan school activities	1	2	3	4	5
[149]	C Take care of school property	1	2	3	4	5
[150]	D. Get along with each other	1	2	3	4	5
[151]	E Make friends with students of other racial/ethnic groups	1	2	3	4	5
[152]	F. Show respect for teachers	1	2	3	4	5
[153]	G Help other students learn	1	2	3	4	5
[154]	H. Get into school activities and clubs	1	2	3	4	5
[155]	I. Compliment other students for good work	1	2	3	4	5
[156]	J. Help make class rules	1	2	3	4	5
[157]	K Decorate classrooms and halls	1	2	3	4	5
[158]	L. Help other students with personal problems	1	2	3	4	5
[159]	M. Make friends with students who are new to the school	1	2	3	4	5
[160]	N. Help students who don't speak English talk to others	1	2	3	4	5

37. Please circle the number below to show how you feel about the following items.

	In this school, students:	*never happens*		*happens sometimes*		*happens a lot*
[161]	A. Steal things from others	1	2	3	4	5
[162]	B. Destroy school property	1	2	3	4	5
[163]	C Write graffiti (write on walls)	1	2	3	4	5
[164]	E Bad-mouth other students	1	2	3	4	5
[165]	F. Bully other students	1	2	3	4	5
[166]	G Fight with other students	1	2	3	4	5
[167]	H Make racial insults	1	2	3	4	5
[168]	I. Tease students who get good grades	1	2	3	4	5

38. Please circle the number below to show how you feel about the following items.

	In your school, students:	*never happens*		*happens sometimes*		*happens a lot*
[169]	A. Cut class	1	2	3	4	5
[170]	B. Cut school	1	2	3	4	5
[171]	C Hit teachers	1	2	3	4	5
[172]	D. Swear or use dirty words	1	2	3	4	5
[173]	E Use illegal drugs	1	2	3	4	5
[174]	F. Drink alcohol	1	2	3	4	5
[175]	G Copy homework	1	2	3	4	5
[176]	H Cheat on tests	1	2	3	4	5
[177]	I. Disturb class	1	2	3	4	5
[178]	J. Smoke in school	1	2	3	4	5

38. **Please circle the number below to show how you feel about the following items.**

	In your school, students:	*never happens*		*happens sometimes*		*happens a lot*
[169]	A. Cut class	1	2	3	4	5
[170]	B. Cut school	1	2	3	4	5
[171]	C Hit teachers	1	2	3	4	5
[172]	D. Swear or use dirty words	1	2	3	4	5
[173]	E Use illegal drugs	1	2	3	4	5
[174]	F. Drink alcohol	1	2	3	4	5
[175]	G Copy homework	1	2	3	4	5
[176]	H Cheat on tests	1	2	3	4	5
[177]	I. Disturb class	1	2	3	4	5
[178]	J. Smoke in school	1	2	3	4	5

39. Please circle the number below to show how you feel about the following items.

	In this school, how many teachers:	*none of the teachers*		*half of the teachers*		*all of the teachers*
[179]	A. Tell students to try hard to do better on tests?	1	2	3	4	5
[180]	B. Tell students to try and get better grades than their classmates?	1	2	3	4	5
[181]	C. Do *not* care if students get bad grades?	1	2	3	4	5
[182]	D. Tell students to do extra work so that they can get better grades?	1	2	3	4	5
[183]	E. Make students work hard to get good grades?	1	2	3	4	5
[184]	F. Try to help students who do badly on their school work?	1	2	3	4	5
[185]	G. Think learning is important	1	2	3	4	5
[186]	H. Allow students to choose what they want to work on?	1	2	3	4	5
[187]	I. Expect students to work out assignments on their own?	1	2	3	4	5

40. Please circle the number below to show how you feel about the following items.

	It is important that teachers:	*not important at all*		*sort of important*		*very important*
[188]	A. Help me do as well as I can on tests.	1	2	3	4	5
[189]	B. Teach me about right and wrong.	1	2	3	4	5
[190]	C. Show me how to get along with other people.	1	2	3	4	5
[191]	D. Discuss drug abuse.	1	2	3	4	5
[192]	E. Teach me how to read and write well.	1	2	3	4	5
[193]	F. Make school a pleasant place to be.	1	2	3	4	5
[194]	G. Discuss teenage pregnancy	1	2	3	4	5
[195]	H. Discuss suicide	1	2	3	4	5
[196]	I. Care about my future	1	2	3	4	5

41. Please circle the number below to show how you feel about the following items.

	In my school,	strongly *dis*agree	*dis*agree	agree	strongly agree
[197]	A. There are unfriendly cliques (groups).	1	2	3	4
[198]	B. Students help each other	1	2	3	4
[199]	C Teachers give students extra help with their school work.	1	2	3	4
[200]	D. Students try to help each other with school work.	1	2	3	4
[201]	E Teachers seem to like the principal.	1	2	3	4
[202]	F. Teachers seem to like each other.	1	2	3	4
[203]	G Teachers seem to like the students.	1	2	3	4
[204]	H Students here learn a lot more than students from other schools.	1	2	3	4
[205]	I. Students here are expected to do homework 4-5 times a week.	1	2	3	4
[206]	J. Teachers care a lot more about their students than teachers from *other* schools.	1	2	3	4
[207]	K Most students feel very close to their teachers.	1	2	3	4

YOU FINISHED. THANKS A LOT!!!!!!!!

☐☐☐☐☐☐☐☐☐☐☐
1 2 3 4 5 6 7 8 9 10 11

CUESTIONARIO PARA ESTUDIANTES

ESTUDIO DE CLIMA ESCOLAR

Este cuestionario es parte de un estudio que se ha hecho para saber cómo se siente ser estudiante de escuela intermedia.

POR FAVOR CONTESTE LAS PREGUNTAS SIGUIENTES HACIENDO UNA MARCA EN LA CASILLA AL LADO DE LA CONTESTACION CORRECTA O LLENANDO EL ESPACIO EN BLANCO. IGNORE LOS NUMEROS ENTRE CORCHETES A SU IZQUIERDA.

[12] 1. ¿Eres hombre o mujer? ( ) 1. hombre ( ) 2. mujer

[13],[14] 2. ¿Qué edad tienes? Tengo __________ años

[15],[16] 3. ¿A qué raza/grupo étnico perteneces?

( ) 1. Asiático
( ) 2. Negro
( ) 3. Blanco
( ) 4. Hispano
( ) 5. Americano
( ) 6. Otro; por favor especifica ____________________

[17],[18],[19] 4. ¿Cuántos años llevas en esta escuela? __________años

[20] 5. ¿En qué grado estás?

( ) 1. Sexto grado
( ) 2. Séptimo grado
( ) 3. Octavo grado

[21],[22],[23] 6. Marca si en esta escuela estás en algún **programa especial.**

( ) 1. No
( ) 2. Bilingüe
( ) 3. Laboratorio Escolar
( ) 4. Educación Especial - Salón de Recursos
( ) 5. Clase de Educación Avanzada
( ) 6. Capítulo I - Lectura
( ) 7. Capítulo I - Matemática
( ) 8. Lectura con Objetivo
( ) 9. Deportes
( ) 10. Otro; por favor especifica ____________________

[24] 7. ¿Crees que es importante venir a la escuela?

( ) 1. Sí
( ) 2. No

[25] 8. ¿Cómo llegas a la escuela la mayoría de las veces? (Marca UNO solamente)

( ) 1. Autobús escolar
( ) 2. Tranvía / Tren
( ) 3. Carro
( ) 4. Caminando

[26].[27].[28] 9. Escoge las tres (3) razones más importantes por las cuales vienes a la escuela.

( ) 1. Para aprender
( ) 2. Para ver mis amistades
( ) 3. Para ir a la universidad
( ) 4. Por participar en deportes
( ) 5. Para obtener trabajo en el futuro
( ) 6. Por comer desayuno y almuerzo
( ) 7. Por hacer algo
( ) 8. Porque mis padres me obligan
( ) 9. Porque es mejor que estar en casa
( ) 10. Porque me gusta algún maestro/maestra
( ) 11. Porque me gusta alguna clase

[29] 10. En general, ¿estás contento/a con tu vida?

( ) 1. Sí, mucho
( ) 2. Sí, algunas veces
( ) 3. No, de ninguna manera

[30] - [55] 11. ¿Cómo usas la mayor parte del tiempo que tienes después de la escuela? (Escribe el número de horas en la linea al lado de cada actividad. Si no usas horas, escribe 0.)

_____ 1. Trabajo fuera de la casa
_____ 2. Hago tareas del hogar
_____ 3. Hago mis asignaciones
_____ 4. Voy a un programa después de clases
_____ 5. Veo televisión / Videos
_____ 6. Juegos de video
_____ 7. Salgo con mis amistades
_____ 8. Leo
_____ 9. Juego deportes
_____10. Cojo lecciones (baile, música, lenguaje, etc.)
_____11. Oigo música
_____12. Salgo a matar tiempo
_____13. Otro; por favor especifíca ______________________________

[56] - [80] 12. ¿Cómó pasas la mayor parte de tu tiempo durante los fines de semana? (Escribe el número de horas en la linea al lado de cada actividad. Si no usas horas, escribe 0.)

_____ 1. Trabajo fuera de la casa
_____ 2. Hago tareas en el hogar
_____ 3. Hago asignaciones
_____ 4. Veo televisión / Videos
_____ 5. Juego con los videos
_____ 6. Salgo a matar tiempo
_____ 7. Voy a las tiendas / de compras
_____ 8. Voy al cine
_____ 9. Voy a la iglesia, al templo o al mezquita
_____10. Juego deportes
_____11. Cojo lecciones (baile, música, lenguaje, etc.)
_____12. Oigo música
_____13. Otro; por favor especifíca ______________________________

[81] - [83] 13. ¿Qué hiciste la mayor parte del tiempo durante el verano pasado? (Marca tres (3) contestaciones)

( ) 1. Trabajé fuera de la casa
( ) 2. Ayudé en la casa
( ) 3. Fuí a escuela de verano
( ) 4. Fuí al campamento
( ) 5. Hice deportes
( ) 6. Viajé
( ) 7. Me quedé en la casa
( ) 8. Viendo televisión / Videos
( ) 9. Jugando con videos
( ) 10. Matando el tiempo
( ) 11. Otro; por favor especifica ____________________

[84] 14a. ¿Tienes trabajo fuera de la casa?

( ) 1. Sí
( ) 2. No (Si no, por favor continúa con la pregunta #15a)

[85],[86] 14b. Si tu respuesta es sí, ¿cuántas horas trabajas?
__________horas/semanal

[87] 15a. El año pasado, ¿hiciste algún trabajo voluntario? (ayudando a otros sin recibir pago)

( ) 1. Sí
( ) 2. No (Si no, por favor continúa con la pregunta #16)

[88] 15b. Si tu respuesta es sí, ¿qué hiciste? ____________________

[89] 15c. Si tu respuesta es sí, ¿cuántas veces lo hiciste?

( ) 1. Semanal
( ) 2. Mensual
( ) 3. Un número especifico de veces. ¿cuántas? __________

[90] 16. Mis padres (o encargados) piensan que la escuelas es:

( ) 1. Muy importante
( ) 2. Importante
( ) 3. No importante

[91] - [93] 17. ¿Han visitado tus padres (o encargados) la escuela este año?

( ) 1. Sí; ¿por qué? ____________________________________
( ) 2. No; ¿por qué no? ________________________________

[94],[95] 18. ¿Qué lenguaje o lenguajes hablas en la casa?

____
____
____

[96] - [98] 19. Marca los tres (3) adultos más importantes en tu vida.

( ) 1. Madre
( ) 2. Padre
( ) 3. Otro miembro de familia; ¿quién? ________________
( ) 4. Un maestro/a
( ) 5. Entrenador
( ) 6. Otro; ¿quién? ________________________________

[99],[100] 20. ¿Cuáles son tus notas en la mayor parte de las clases?

( ) 1. A
( ) 2. B
( ) 3. C
( ) 4. D
( ) 5. F

[101] - [103] 21. ¿Cuál crees que es el trabajo de un maestro en la escuela? (Marca las tres (3) más importantes)

( ) 1. Ayudarnos a aprender
( ) 2. Ser nuestro amigo/a
( ) 3. Enseñarnos lo bueno y lo malo
( ) 4. Cuidarnos
( ) 5. Hacer que nos portemos bien
( ) 6. Otro; por favor especifíca ______________

[104] - [106] 22. ¿Cuál crees que es el trabajo del principal en tu escuela? (Marca las tres (3) más importantes)

( ) 1. Dirigir la escuela
( ) 2. Ayudar a los maestros
( ) 3. Ayudar a los estudiantes
( ) 4. Disciplinará a los estudiantes
( ) 5. Ser el jefe de los maestros
( ) 6. Asegurarse de la seguridad de los estudiantes
( ) 7. Otro; por favor especifíca ______________

[107] - [109] 23. ¿Cuál crees que es el trabajo de un estudiante en la escuela? (Marca las tres (3) más importantes)

( ) 1. Recibir educación
( ) 2. Aprender otras culturas
( ) 3. Llevarnos bien
( ) 4. Hacer lo mejor que pueda
( ) 5. Estudiar con ahínco
( ) 6. Ayudar a otros
( ) 7. Ayudar a hacer decisiones en la escuela
( ) 8. Otro; por favor especifíca ______________

[110] 24. Si tienes un problema serio, ¿hay algún adulto en la escuela al cual irías pidiendo ayuda? (Marca una respuesta solamente)

( ) 1. No
( ) 2. Maestro/a
( ) 3. Consejero
( ) 4. Enfermera
( ) 5. Director de Instrucción
( ) 6. Principal
( ) 7. Entrenador
( ) 8. Otro; por favor especifíca ____________________

[111] 25. Las reglas de disciplina de la escuela, ¿son claras para ti?

( ) 1. Sí ( ) 2. No

[112] 26. ¿Te suspendieron en la escuela el año pasado?

( ) 1. Sí ( ) 2. No

[113] - [115] 27. ¿Qué espera esta escuela que tu hagas? (Marca tres (3) cosas)

( ) 1. Que estudie fuerte
( ) 2. Que me lleve bien con los otros
( ) 3. Que haga lo mejor que pueda
( ) 4. Que tenga buenas notas
( ) 5. Que ayude a otros
( ) 6. Que me porte bien

[116] 28. ¿Te han castigado tus maestros durante el último año?

( ) 1. Nunca
( ) 2. Algunas veces
( ) 3. Muchas veces

[117] 29. ¿Cómo la mayoría de maestros en esta escuela castiga a los estudiantes? (Marca UNA respuesta solamente)

( ) 1. Los dejan en la escuela después de clases
( ) 2. Dándoles trabajo adicional
( ) 3. Mandándolos a la oficina del principal
( ) 4. No los mandan a recreo ni al gimnasio
( ) 5. Les habla en privado
( ) 6. Les habla frente a todo el mundo
( ) 7. Les grita
( ) 8. Otro; por favor especifíca ____________________

[118] 30a. Durante el último año, ¿te ha presentado la escuela algún premio por hacer buen trabajo?

( ) 1. Sí
( ) 2. No (Si no, por favor continúa con la pregunta #31)

[119] - [121] 30b. Si tu respuesta es sí, ¿por qué?

( ) 1. Trabajos académicos
( ) 2. Deportes
( ) 3. Música
( ) 4. Arte
( ) 5. Drama
( ) 6. Otro; por favor especifíca ____________________

[122] - [126] 31. Marca las cosas especiales que los maestros hacen para los estudiantes cuando hacen algo bueno. (Marca todo lo que aplica)

( ) 1. Dan regalos; baratos pero buenos
( ) 2. Exhiben los trabajos en el salón
( ) 3. Envían cartas bonitas a nuestras casas
( ) 4. Escriben buenos comentarios en los examenes y asignaciones
( ) 5. Otro; por favor especifíca ____________________

[127] 32a. ¿Te ha premiado tu maestro/a por hacer bien?

( ) 1. Sí
( ) 2. No (Si no, por favor continúa con la pregunta #33)

[128] - [130] 32b. Si tu respuesta es sí, ¿por qué?

( ) 1. Trabajo en la clase
( ) 2. Trabajo en la casa/asignaciones
( ) 3. Exámenes
( ) 4. Buena conducta
( ) 5. Ayudar a otros
( ) 6. Otro; por favor especifica ________________________

[131] - [133] 33. ¿Te gusta venir a la escuela?

( ) 1. Sí; ¿por qué? __________________________________
( ) 2. No; ¿por qué no? ________________________________

[134] - [136] 34. ¿Te sientes seguro en la escuela?

( ) 1. Sí; ¿por qué? ____________________________________
( ) 2. No; ¿por qué no? __________________________________

¡Estás haciendo muy buen trabajo!

¡Continúa!

35. **Por favor circula el número abajo para indicar cuán importante son los siguientes artículos.**

			No Importante		**Algo Importante**		**Muy Importante**
[137]	A.	Familia	1	2	3	4	5
[138]	B.	Ser rico/a	1	2	3	4	5
[139]	C.	Amistades	1	2	3	4	5
[140]	D.	Educación futura	1	2	3	4	5
[141]	E.	Diversión	1	2	3	4	5
[142]	F.	Obtener buenas notas	1	2	3	4	5
[143]	G.	Sentirse Seguro/a (a salvo)	1	2	3	4	5
[144]	H.	Ayudar a otros	1	2	3	4	5
[145]	I.	Tener trabajo ahora	1	2	3	4	5
[146]	J.	Trabajo futuro	1	2	3	4	5

36. **Por favor circula el número abajo para indicar cómo los estudiantes se comportan en tu escuela.**

Los Estudiantes:

		Nunca Sucede	Sucede Algunas veces		Sucede Muchas veces	
[147]	A. Ayudan en la escuela	1	2	3	4	5
[148]	B. Ayudan a planear actividades escolares	1	2	3	4	5
[149]	C. Cuidan la propiedad de la escuela	1	2	3	4	5
[150]	D. Se llevan bien	1	2	3	4	5
[151]	E. Hacen amistades con estudiantes de otros grupos raciales/étnicos	1	2	3	4	5
[152]	F. Demuestran respeto por los maestros	1	2	3	4	5
[153]	G. Ayudan a otros estudiantes a aprender	1	2	3	4	5
[154]	H. Se envuelven en actividades escolares y clubes	1	2	3	4	5
[155]	I. Alagan a otros estudiantes por hacer buen trabajo	1	2	3	4	5
[156]	J. Ayudan a hacer reglas en su clase	1	2	3	4	5
[157]	K. Decoran salones y pasillos	1	2	3	4	5
[158]	L. Ayudan a otros estudiantes con problemas personales	1	2	3	4	5
[159]	M. Hacen amistad con estudiantes nuevos en la escuela	1	2	3	4	5
[160]	N. Ayudan a estudiantes que no hablan Inglés a hablar con otros	1	2	3	4	5

37. **Por favor circula el número abajo para indicar cómo te sientes de los siguientes artículos.**

En esta escuela, los estudiantes:

		Nunca Sucede		**Sucede Algunas veces**		**Sucede Muchas veces**
[161]	A. Roban cosas	1	2	3	4	5
[162]	B. Destruyen propiedad de la escuela	1	2	3	4	5
[163]	C. Escriben en las paredes de la escuela	1	2	3	4	5
[164]	D. Hablan mal a otros estudiantes	1	2	3	4	5
[165]	E. Intimidan a otros estudiantes	1	2	3	4	5
[166]	F. Pelean con otros estudiantes	1	2	3	4	5
[167]	G. Hacen comentarios raciales	1	2	3	4	5
[168]	H. Se burlan de estudiantes con mejores notas	1	2	3	4	5

38. Por favor circula el número abajo para indicar cómo te sientes de los siguientes artículos.

		Nunca Sucede		Sucede Algunas veces		Sucede Muchas veces
	En esta escuela, los estudiantes:					
[169]	A. Faltan a clases	1	2	3	4	5
[170]	B. Faltan todo el día de clase	1	2	3	4	5
[171]	C. Le pegan a los maestros	1	2	3	4	5
[172]	D. Blasfeman o usan insultos	1	2	3	4	5
[173]	E. Usan drogas ilegales	1	2	3	4	5
[174]	F. Usan bebidas alcohólicas	1	2	3	4	5
[175]	G. Copian asignaciones	1	2	3	4	5
[176]	H. Copian exámenes	1	2	3	4	5
[177]	I. Interrumpen clases	1	2	3	4	5
[178]	J. Fuman en la escuela	1	2	3	4	5

39. Por favor circula el número abajo para indicar cómo te sientes en cuanto a los siguientes artículos.

	En esta escuela, ¿cuántos maestros...:	**Ninguno de ellos**		**La mitad de ellos**		**Todos ellos**
[179]	A. Dicen a los estudiantes que traten de mejorar en los exámenes?	1	2	3	4	5
[180]	B. Dicen a los estudiantes que traten de obtener mejor nota que sus compañeros?	1	2	3	4	5
[181]	C. No les importa si los estudiantes tienen malas notas?	1	2	3	4	5
[182]	D. Le dicen a los estudiantes que hagan trabajo adicional para obtener mejores notas?	1	2	3	4	5
[183]	E. Hacen que los estudiantes trabajen fuerte para obtener buenas notas?	1	2	3	4	5
[184]	F. Tratan de ayudar estudiantes con su trabajo escolar?	1	2	3	4	5
[185]	G. Creen que aprender es importante?	1	2	3	4	5
[186]	H. Permiten a los estudiantes escoger en lo que quieren trabajar?	1	2	3	4	5
[187]	I. Esperan que los estudiantes hagan sus asignaciones solos?	1	2	3	4	5

40. **Por favor circula el número abajo para indicar cuán importante son los siguientes artículos.**

	Es importante que los maestros:	**No Importante**		**Algo Importante**		**Muy Importante**
[188]	A. Me ayuden a hacer lo mejor que puedo en exámenes.	1	2	3	4	5
[189]	B. Me enseñen sobre lo bueno y lo malo.	1	2	3	4	5
[190]	C. Me enseñen a llevarme con otra gente.	1	2	3	4	5
[191]	D. Discutan sobre el abuso de drogas.	1	2	3	4	5
[192]	E. Me enseñen a leer y escribir bien.	1	2	3	4	5
[193]	F. Hagan de la escuela un lugar agradable para estar.	1	2	3	4	5
[194]	G. Discutan sobre el embarazo de adolescentes.	1	2	3	4	5
[195]	H. Discutan sobre suicidio.	1	2	3	4	5
[196]	I. Se interesen en mi futuro.	1	2	3	4	5

41. Por favor circula el número abajo para indicar cuán importante son los siguientes artículos.

	Fuertemente en desacuerdo	**No estoy de acuerdo**	**Estoy de acuerdo**	**Fuertemente de acuerdo**
En mi escuela,				
[197] A. Hay grupos hostiles.	1	2	3	4
[198] B. Los estudiantes se ayudan unos a otros.	1	2	3	4
[199] C. Los maestros proveen ayuda adicional para trabajo escolar.	1	2	3	4
[200] D. Los estudiantes tratan de ayudarse unos a otros con el trabajo escolar.	1	2	3	4
[201] E. Los maestros parecen llevarse bien con el principal.	1	2	3	4
[202] F. Los maestros parecen llevarse bien unos con otros.	1	2	3	4
[203] G. Los maestros parecen llevarse bien con los estudiantes.	1	2	3	4
[204] H. Los estudiantes aprenden mucho más que estudiantes de otras escuelas.	1	2	3	4
[205] I. Se espera que los estudiantes tengan asignaciones de 4 a 5 veces a la semana.	1	2	3	4
[206] J. Los maestros se interesan más por los estudiantes que maestros de otras escuelas.	1	2	3	4
[207] K. La mayoría de los estudiantes se sienten muy unidos a los maestros.	1	2	3	4

TERMINASTE. MUCHAS GRACIAS!!!!!!!!

☐☐☐☐ ☐☐☐☐☐☐☐
1 2 3 4 5 6 7 8 9 10 11

CAU HOI TRAC NGHIEM CHO HOC SINH

Nhửng câu hỏi trấc nghiêm sau đây là một phấn của sư nghiên cưú dang đuóc thúc hiên để tìm hiều về cam nghi của hoc sinh ỏ môi truòng Trung-hoc Câp Một (Middle School).

VUÍ LÕNG TRẢ LỜĨ NHỮNG CÂU HỎI DUỚI ĐÂY BẰNG CÁCH ĐÁNH DẤU VÀO CHỖ NGOẠC ( ) GẦN CẬU TRẢ LỜI ĐUNG HOAC ĐIỀN VÀO CHỖ TRỐNG. DỪNG ĐỂ Ý TOI NHỮNG SỐ NHỎ TRONG NGOẠC VUÔNG BÊN TRAI.

[12] 1. Nam hoăc nữ ? ( ) 1. nam ( ) 2. nữ

[13],[14] 2. Em bao nhiêu tuổi? ____________ tuổi.

[15],[16] 3. Em thuộc chủng tôc nào ?

( ) 1. Á-Châu
( ) 2. Da-Đen
( ) 3. Da-Trăng
( ) 4. Tây Ban Nha
( ) 5. Nguòi Mỹ Da đỏ
( ) 6. Khác hỏn, nói rõ ______________________________

[17],[18],[19] 4. Em đã hoc ở trường này đuoc mấy năm rồi ? __________ năm.

[20] 5. Em đang theo hoc lớp mấy ?

( ) 1. Lớp 6
( ) 2. Lớp 7
( ) 3. Lớp 8

[21],[22],[23] 6. Đánh dấu vào những chuơng trình đăc biêt mà em đang theo hoc ở trường này

( ) 1. Không có
( ) 2. Song ngữ
( ) 3. Lớp thí nghiệm
( ) 4. Giáo duc đăt biệt
( ) 5. Những lớp cho hoc sinh khá
( ) 6. Chuòng 1 - Tập đoc
( ) 7. Chuòng 1 - Toán
( ) 8. Tập đọc
( ) 9. Thể duc, thể thao
( ) 10. Khác hỏn, nói rõ ______________________________

[24] 7. Em có nghĩ rằng đi đến trường là quan trọng không ?

( ) 1. Có
( ) 2. Không

[25] 8. Em đến trường bằng phương tiện nào nhiều nhất ? (chỉ đánh dấu vào *một* chỗ)

( ) 1. Xe bus của trường
( ) 2. Xe bus, xe điện ngầm
( ) 3. Xe hơi
( ) 4. Đi bộ.

[26],[27],[28] 9. Dánh dấu vào *3 lý do quan trọng* nhất Tại sao em đến trường ?

( ) 1. Để học
( ) 2. Để gặp bạn bè
( ) 3. Để được vào Đại học
( ) 4. Để được chơi thể thao
( ) 5. Để được việc làm trong tương lai
( ) 6. Để được ăn sáng và ăn trưa
( ) 7. Để làm bất cứ chuyện gì
( ) 8. Bởi vì cha mẹ ép buộc
( ) 9. Bởi vì trường học tốt hơn ở nhà
( ) 10. Bởi vì em thích thầy/cô nào đó
( ) 11. Bởi vì em thích lớp học nào đó

[29] 10. Nói chung, em có sung sướng về đời sống của em không ?

( ) 1. Có, rất nhiều
( ) 2. Có, thỉnh thoảng
( ) 3. Không, không một tí nào cả.

[30] - [55] 11. Em đã dùng thòi giò của em nhù thế nào sau khi tan hoc ? (Viết số giò vào chồ trống gần mỗi hành động. Nếu không có, viết 0)

___ 1. Làm việc sau giò hoc
___ 2. Tập hát
___ 3. Làm bài vỏ
___ 4. Chuòng trình học thêm
___ 5. Xem ti-vi/phim
___ 6. Chòi video games
___ 7. Đi choi vói ban bè
___ 8. Đọc sách
___ 9. Chòi thể thao
___ 10. Học khêu vũ, nghệ thuật, âm nhac, ngôn ngũ...v.v..
___ 11. Chòi âm nhạc
___ 12. Đi chòi
___ 13. Khác hòn, nói rõ ______________________________

[56] - [80] 12. Em đã dùng thòi giò của em nhù thế nào vào ngày cuối tuần ? (Viết số giò vào chồ trống gần mỗi hành động. Nếu không có, viết 0)

___ 1. Làm việc sau giò hoc
___ 2. Tập hát tai nhà
___ 3. Làm bài vỏ
___ 4. Xem ti-vi/phim
___ 5. Chòi video games
___ 6. Đi chòi
___ 7. Đi đến nhũng trung tâm buôn bán, mall/shopping
___ 8. Đi xem xi-nê
___ 9. Đi nhà thò, chùa, hoăc đám tang
___ 10. Chòi thể thao
___ 11. Học khêu vũ, nghệ thuật, âm nhạc, ngôn ngũ...v.v..
___ 12. Chòi âm nhạc
___ 13. Khác hòn, nói rõ ______________________________

[81] - [83] 13. Em đã dùng thời giờ của em nhủ thế nào trong mùa hè qua ? (đánh dấu 3 chỗ)

( ) 1. Làm việc sau giờ học
( ) 2. Giúp đỡ về chuyện nhà
( ) 3. Đi hoc hè
( ) 4. Đi trai hè
( ) 5. Choi thế thao
( ) 6. Đi du lịch
( ) 7. Ở nhà
( ) 8. Xem ti-vi/phim
( ) 9. Chòi video games
( ) 10. Đi choi
( ) 11. Khác hòn, nói rõ ______________________________

[84] 14a. Em có viêc làm không?
( ) 1. Có
( ) 2. Không (*nếu không, tiếp tuc ở câu hỏi 15a*)

[85],[86] 14b. Nếu có, em làm bao nhiêu giờ mỗi tuần? ______________ giờ/tuần

[87] 15a. Trong năm qua, em có làm những viêc tình nguyện nào không ?
( ) 1. Có
( ) 2. Không (*nếu không, tiếp tục ở câu hỏi 16*)

[88] 15b. Nếu có, em đã làm gì? ____

[89] 15c. Nếu có, em đã làm bao nhiêu lần?
( ) 1. Hằng tuần
( ) 2. Hằng tháng
( ) 3. Một số lần. bao nhiêu ? _______

[90] 16. Cha me ẹm nghĩ rằng truòng học là:
( ) 1. Rât quan trọng
( ) 2. quan trong
( ) 3. Không quan trọng

[91] - [93] 17. Cha me em có đến thăm truờng trong năm học này không?
( ) 1. Có, lý do? ____________________
( ) 2. Không, lý do? ____________________

[94],[95] 18. Em dùng nhũng thú tiếng nào để nói chuyện ỏ nhà?
____
____

[96] - [98] 19. Đánh dấu vào 3 nguòi lón tuồi quan trọng nhât trong đõi em?
( ) 1. Mẹ
( ) 2. Cha
( ) 3. Bà con; ai? ____________________
( ) 4. Thầy/cô giáo
( ) 5. Thầy day thể duc
( ) 6. Khác hòn; ai? ____________________

[99],[100] 20. Hạng diểm nào mà em thuòng đạt đuọc trong các lóp em học?

( ) 1. A's
( ) 2. B's
( ) 3. C's
( ) 4. D's
( ) 5. F's

[101] - [103] 21. Theo em nghĩ, nhiệm vụ của thầy cô giáo trong truòng là gì?
(không đuoc đánh dấu nhiều hòn 3 chỗ)
( ) 1. Giúp đỏ các em học tập
( ) 2. làm bạn vòi các em
( ) 3. Dạy các em nhùng điều hay lẻ phải
( ) 4. Săn sóc các em
( ) 5. Khác hòn; nói rõ ______________________________

[104] - [106] 22. Theo em nghĩ, nhiệm vụ của thầy Hiệu truòng trong truòng là gì?
(không đuoc đánh dấu nhiều hòn 3 chỗ)
( ) 1. Điều khiển truòng học
( ) 2. Giúp đỏ thầy/cô giáo
( ) 3. Giúp đỏ học sinh
( ) 4. Trùng phạt học sinh
( ) 5. Làm chủ các thầy cô
( ) 6. Bảo đảm học sinh đuọc an toàn
( ) 7. Khác hòn; nói rõ ______________________________

[107] - [109] 23. Theo em nghĩ, nhiệm vụ của nguòi học sinh trong truòng học này là gì?
(không đuoc đánh dấu nhiều hon 3 chỗ)
( ) 1. Đuọc sụ giáo dục
( ) 2. Học hỏi về thế giới
( ) 3. Làm quen vòi học sinh khác
( ) 4. Để làm theo sức mình
( ) 5. Để học tập chăm chỉ
( ) 6. Để giúp học sinh khác
( ) 4. Phụ giúp để làm quyết định trong truòng
( ) 5. Khác hòn; nói rõ ______________________________

[110] 24. Nếu em có môt trở ngại trầm trọng, em sẽ hỏi ai để cần sự giúp đỡ?
(không được đánh dấu nhiều hơn 3 chỗ)
( ) 1. Không có ai
( ) 2. Thầy cô giáo
( ) 3. Thầy cô hướng dẫn
( ) 4. Y tá
( ) 5. Người chỉ đạo trườn học
( ) 6. Hiệu trưởng
( ) 7. Thầy dạy thể duc
( ) 8. Khác hơn; nói rõ ______________________________

[111] 25. Em có thông hiểu những lễ lối về kỷ luật của trường này không?
( ) 1. Có ( ) 2. Không

[112] 26. Trong năm học qua, em có bị đuổi học hay không ?
( ) 1. Có ( ) 2. Không

[113] - [115] 27. Trường mong muốn các em làm gì ? (đánh dấu 3 chỗ)
( ) 1. Học tập chăm chỉ
( ) 2. Làm quen với học sinh khác
( ) 3. Làm theo khả năng của em
( ) 4. Được điểm tốt
( ) 5. Giúp đỡ người khác
( ) 6. Ngoan ngoãn

[116] 28. Trong năm học qua, em có bị trừng phạt bởi thầy/cô giáo không ?
( ) 1. Không bao giờ
( ) 2. Thỉnh thoảng
( ) 3. Nhiều lần

[117] 29. Hầu hết các thầy cộ giáo trong truờng này trừng phat hoc sinh bằng cách nào? (dánh dấu chỉ 1 chỗ)
( ) 1. Giữ hoc sinh lại truờng sau khi tan học
( ) 2. Cho học sinh làm thêm bài làm
( ) 3. Gửi học sinh đến văn phòng Hiệu truởng
( ) 4. Không cho học sinh ra chơi trong giờ chơi và giờ thể dục
( ) 5. Nói chuyện với cá nhân học sinh
( ) 6. Nói với học sinh truớc cả lớp
( ) 7. La hét học sinh
( ) 8. Khác hơn; nói rõ ____________________

[118] 30a. Trong năm học qua, em có được truờng ban thưởng gì không ?

( ) 1. Có
( ) 2. Không (nếu không, tiếp tuc ở câu hỏi 31)

[119] - [121] 30b. Nếu có, em đã được loại khen thưởng về chuyên gì?
( ) 1. Học tập
( ) 2. Thể thao
( ) 3. Âm nhac
( ) 4. Nghệ thuật
( ) 5. Kich
( ) 6. Khác hơn; nói rõ ____________________

[122] - [126] 31. Thầy cô giáo trong trường em có làm gì đặt biệt cho học sinh khi học sinh đạt được xuất sắc không ? (dánh dấu những phần có liên quan)
( ) 1. Cho những phần thưởng nhỏ nhưng thú vị
( ) 2. Treo bài làm của em trong lớp
( ) 3. Gửi thư khen về nhà
( ) 4. Viết những lời phê khuyến khích trên bài thi và bài làm
( ) 5. Khác hơn; nói rõ ____________________

[127] 32a. Em có bao giờ đuọc thầy cô giáo khen thuỏng xuất sắc không?

( ) 1. Có
( ) 2. Không (nếu không, tiếp tuc ở câu hỏi 33)

[128] - [130] 32b. Nếu có, đuọc khen thuỏng về vấn đề gì?
( ) 1. Bài làm ở truờng
( ) 2. Bài làm ở nhà
( ) 3. Bài thi
( ) 4. Ngoan ngoãn
( ) 5. Giúp đỏ nguời khác
( ) 6. Khác hỏn; nói rõ ____________________

[131] - [133] 33. Em thích đi đến truờng không ?
( ) 1. Có; tại sao? ____________________
( ) 2. Không; tai sao? ____________________

[134] - [136] 34. Em có cảm thấy an toàn ở truờng không ?
( ) 1. Có; tai sao? ____________________
( ) 2. Không; tại sao? ____________________

35. Hãy khoanh tròn nhũng số duói để chỉ muc dộ quan trong của nhũng đề muc duói đây đôi vói em.

			Không quan trong		hoi quan trong		rất quan trong
[137]	A.	Gia đinh	1	2	3	4	5
[138]	B.	Duóc giàu sang	1	2	3	4	5
[139]	C.	Bạn bè	1	2	3	4	5
[140]	D.	Sù giáo duc trong tuòng lai	1	2	3	4	5
[141]	E.	Có sù vui chòi	1	2	3	4	5
[142]	F.	Duóc điểm tốt (cao)	1	2	3	4	5
[143]	G.	Cảm thấy an toàn	1	2	3	4	5
[144]	H.	Giúp đỏ nguòi khác	1	2	3	4	5
[145]	I.	Có đuòc viếc làm tốt	1	2	3	4	5
[146]	J.	Việc làm trong tuóng lai	1	2	3	4	5

36. Hãy khoanh tròn những số dưới để chỉ mức độ quan trọng của những đề mục dưới đây đối với em.

		Học sinh:	Không bao giờ xảy ra		Thỉnh thoảng xảy ra		Thường xuyên xảy ra
[147]	A.	Giúp đỡ lẫn nhau trong trường	1	2	3	4	5
[148]	B.	Phu vach kế hoạch sinh hoạt của trường	1	2	3	4	5
[149]	C.	Chăm sóc tài sản của trường	1	2	3	4	5
[150]	D.	Hòa nhã với học sinh khác	1	2	3	4	5
[151]	E.	Làm ban với những hoc sinh thuộc chung tộc khác	1	2	3	4	5
[152]	F.	Kinh trong thầy cô giáo	1	2	3	4	5
[153]	G.	Giúp đỡ học sinh khác hoc hỏi	1	2	3	4	5
[154]	H.	Tham gia vào hội đoàn và sinh hoạt trong trường	1	2	3	4	5
[155]	I.	Chúc tung những học sinh khác ho đạt được xuất sắc	1	2	3	4	5
[156]	J.	Giúp làm kỷ luật trong lớp	1	2	3	4	5
[157]	K.	Trang trí phòng học và lối đi trong trường	1	2	3	4	5
[158]	L.	Giúp đỡ học sinh khác với những vấn đề cá nhân	1	2	3	4	5
[159]	M.	Làm bạn với những học sinh mới	1	2	3	4	5
[160]	N.	Giúp đỡ những học sinh chưa biết tiếng Anh nói chuyện với những học sinh khác	1	2	3	4	5

37. Hãy khoanh tròn những số dưới để chỉ mức độ quan trong của những đề mục dưới đây đối với em.

		Trong trường học này, hoc sinh:	Không bao giờ xảy ra		Thỉnh thoảng xảy ra		Thường xuyên xảy ra
[161]	A.	Trôm cắp đồ vật của người khác	1	2	3	4	5
[162]	B.	Phá hủy tài sản của nhà trường	1	2	3	4	5
[163]	C.	Viết nhảm (viết lên tường)	1	2	3	4	5
[164]	D.	Dã man và bất lich sứ với hoc sinh khác	1	2	3	4	5
[165]	E.	Nói những điều tàn ác với học sinh khác	1	2	3	4	5
[166]	F.	Bắt nạt hoc sinh khác	1	2	3	4	5
[167]	G.	Đánh lộn với những học sinh khác	1	2	3	4	5
[168]	H.	Phê bình kỳ thị chủng tộc	1	2	3	4	5
	I.	Chọc ghẹo những học sinh được điểm cao	1	2	3	4	5

38. Hãy khoanh tròn những số dưới để chỉ mức độ quan trọng của những đề muc dưới đây đối với em.

		Trong trường học này, học sinh:	Không bao giờ xảy ra		Thỉnh thoảng xảy ra		Thường xuyên xảy ra
[169]	A.	Bỏ lớp	1	2	3	4	5
[170]	B.	Trốn học	1	2	3	4	5
[171]	C.	Đánh thầy cô giáo	1	2	3	4	5
[172]	D.	Chửi thề hoăc chửi tuc	1	2	3	4	5
[173]	E.	Dùng sì ke, ma túy, cần sa , v.v..	1	2	3	4	5
[174]	F.	Uống rượu/beer	1	2	3	4	5
[175]	G.	Chép lai bài làm từ người khác	1	2	3	4	5
[176]	H.	Gian lận trong bài thi	1	2	3	4	5
[177]	I.	Phá rối lớp học	1	2	3	4	5
[178]	J.	Hút thuốc trong trường học	1	2	3	4	5

39. Hãy khoanh tròn nhũng số duói để chỉ mục độ quan trọng của nhũng đề mục duói đây đối với em.

		Trong truòng học này, có bao nhiêu thầy cô giáo:	Không một thầy cô nào		Nủa số thầy cô		Tất cả thầy cô
[179]	A.	Khuyên bảo học sinh cố gắng để làm bài thi tốt hơn ?	1	2	3	4	5
[180]	B.	Khuyên bảo học sinh cố gắng để đạt đuọc điểm tốt hơn học sinh cùng lóp ?	1	2	3	4	5
[181]	C.	Không lo lắng khi học sinh đuọc điểm xấu ?	1	2	3	4	5
[182]	D.	Khuyên bảo học sinh làm thêm bài làm để học sinh có thể đạt đuọc điểm tốt hơn ?	1	2	3	4	5
[183]	E.	Làm học sinh cố gắng để đạt đuọc điểm tốt ?	1	2	3	4	5
[184]	F.	Giúp đỡ nhũng học sinh kém ?	1	2	3	4	5
[185]	G.	Nghĩ rằng học hỏi là quan trọng ?	1	2	3	4	5
[186]	H.	Cho phép học sinh lụa chọn điều mà học sinh muốn làm ?	1	2	3	4	5
[187]	I.	Mong muốn học sinh tụ mình làm bài vở ?	1	2	3	4	5

40. Hãy khoanh tròn nhũng số duói để chỉ mức độ quan trọng của nhũng đề mục duòi đây đối vói em.

		Su quan trong về thầy cô giáo:	Không quan trọng		hoi quan trọng		rất quan trọng
[188]	A.	Giúp đỡ em làm bài thi vòi khả năng của em	1	2	3	4	5
[189]	B.	Dạy em nhũng điều đúng và sai.	1	2	3	4	5
[190]	C.	Chỉ cho em biết cách hòa thuận vói nguòi khác.	1	2	3	4	5
[191]	D.	Bàn thảo về su tê hại của xì-ke, ma-túy, cần -sa, v.v..	1	2	3	4	5
[192]	E.	Dạy em cách đọc và viết giỏi.	1	2	3	4	5
[193]	F.	Làm cho truòng học trò thành một nòi thoải mái và dễ chịu.	1	2	3	4	5
[194]	G.	Bàn thảo về vấn đề có thai của thiếu niên.	1	2	3	4	5
[195]	H.	Bàn thảo về vấn đề tự vận.	1	2	3	4	5
[196]	I.	Lo lắng về tuòng lai của em.	1	2	3	4	5

41. Hãy khoanh tròn những số dưới để chỉ mức độ quan trọng của những đề mục dưới đây đối với em.

			rất không đồng ý	không đồng ý	đồng ý	rất đồng ý
		Trong trường của em:				
[197]	A.	Có những học sinh mất cảm tình	1	2	3	4
[198]	B.	Học sinh giúp đỡ lẫn nhau	1	2	3	4
[199]	C.	Thầy cô giáo giúp đỡ thêm hoc sinh về bài làm ở trường.	1	2	3	4
[200]	D.	Hoc sinh giúp đỡ lẫn nhau về bài làm ở truong.	1	2	3	4
[201]	E.	Thầy cô giáo có vẻ thích thầy/cô Hiệu trưởng.	1	2	3	4
[202]	F.	Thầy cô giáo có vẻ thích lẫn nhau	1	2	3	4
[203]	G.	Thầy cô giáo có vẻ thích học sinh.	1	2	3	4
[204]	H.	Học sinh học hỏi nhiều hơn những học sinh từ trường khác.	1	2	3	4
[205]	I.	Hoc sinh phải làm bài ở nhà khoảng 4-5 lần mỗi tuần.	1	2	3	4
[206]	J.	Thầy cô giáo lo lắng về học sinh nhiều hơn là thầy cô của trường khác	1	2	3	4
[207]	K.	Hầu hết học sinh cảm thấy thân thiết với thầy cô giáo.	1	2	3	4

CẢM ƠN CÁC EM !!!!

Boston University—Boston Public Schools Collaborative Project on RESEARCH FOR EFFECTIVE MIDDLE SCHOOLS

Mary H. Shann, Project Director

STUDENT QUESTIONNAIRE - ALL FOUR SCHOOLS

Number of Respondents = 1583; Surveyed March, 1989

1. Are you male or female ? (53.3%) male (45.5%) female (1.2%) missing

2. Average age - 12.9 years. Missing (2.4%)

3. What race/ethnic group(s) do you belong to?

12.8%	Asian
32.8%	Black
8.9%	Caucasian (white)
36.2%	Hispanic
1.7%	Native American
3.3%	Other
2.5%	Combination
2.0%	Missing

4. Average number of years at this school = 1.9 years. Missing (6.6%)

5. What grade are you in?

38.9%	Sixth grade
31.4%	Seventh grade
29.4%	Eighth grade
.3%	Missing

6. Check if you are in any special program in this school?

22.5%	No
11.6%	Bilingual
2.5%	Lab Class/Cluster
5.8%	Special Education - Resource Room
8.7%	Advanced Work Class
13.5%	Chapter 1 - Reading
3.3%	Chapter 1 - Math
.6%	Targeted Reading
3.0%	Sports
5.7%	Other
16.2%	Combination
4.7%	Missing

7. Do you think it is important to come to school?

96.4% Yes 3.5% No 0.1% Missing

8. How do you get to school on most days?

40.4%	School bus
16.6%	The T
12.1%	Car
30.9%	Walk
.5%	Missing

9. Check the 3 most important reasons why you come to school.

1st	To learn (93.4%)
	To see my friends (20.4%)
3rd	To get into college (70.5%)
	To participate in sports (7.9%)
2nd	To get a job in the future (73.6%)
	To get breakfast and lunch (1.0%)
	For something to do (4.0%)
	Because my parents make me (9.8%)

10. In general, are you happy about your life?

53.8%	Yes, very much
43.1%	Yes, sometimes
3.1%	No, not at all
1.3%	Missing

11. How do you spend most of your time after school? (Percentages not including missing data)

Activity	Hours 0	1	2	3	4+
Work outside the home	82.1%	05.2%	03.6%	03.2%	05.9%
Do chores	28.6%	48.4%	14.8%	04.3%	04.0%
Do homework	6.7%	50.4%	26.3%	09.6%	07.1%
Afterschool program	77.2%	13.2%	04.7%	02.5%	02.5%
Watch TV/videos	10.1%	19.5%	21.9%	18.0%	30.4%
Play video games	43.8%	28.7%	12.2%	06.3%	08.9%
Go out with my friends	30.5%	17.5%	15.0%	12.6%	24.6%
Read	33.5%	44.2%	13.6%	03.4%	05.4%
Play sports	40.0%	21.6%	15.2%	11.5%	11.7%
Take lessons	86.5%	05.4%	03.2%	02.1%	02.7%
Play music	54.5%	20.2%	09.8%	06.6%	08.7%
Hang out	45.5%	14.9%	11.4%	07.6%	20.8%
Other	79.1%	06.8%	04.3%	03.2%	06.9%

12. How do you spend most of your time on weekends? (Percentages not including missing data)

Activity	Hours 0	1	2	3	4+
Work outside ofthe home	82.2%	04.6%	03.8%	02.7%	06.5%
Do chores at home	33.7%	33.7%	19.5%	06.5%	06.6%
Do homework	47.8%	32.1%	11.3%	04.8%	03.9%
Watch TV/videos	12.2%	14.6%	17.8%	15.4%	40.2%
Play video games	41.5%	21.6%	14.9%	08.7%	13.3%
Hang out	36.5%	10.7%	10.3%	11.0%	31.8%
Go to the mall/shopping	22.8%	11.2%	17.2%	17.7%	31.2%
Go to the movies	32.2%	05.0%	26.7%	17.7%	18.4%
Go church,temple,mosque	53.5%	17.5%	11.0%	07.0%	11.0%
Play sports	41.0%	17.6%	15.4%	12.1%	13.9%
Take lessons	88.9%	03.8%	03.5%	01.3%	02.4%
Play music	55.9%	15.2%	11.2%	05.2%	12.5%
Other	78.5%	03.6%	03.3%	03.3%	11.2%

13. How did you spend most of your time last summer? Check 3 ways.

1st - Travel   2nd - Play sports   3rd - Hang out

14a. Do you have a job outside the home?

20.6% Yes   74.5% No   5.0% Missing

14b. If yes, how many hours do you work per week? Average = 8.3 hours.

15a. In the last year, have you done any volunteer work?

26.5%	Yes
73.5%	No
6.9%	Missing

15c. If yes, how many times did you do it?

51.5%	Weekly
11.9%	Monthly
36.6%	A specific number of times

(76.8% did not do volunteer work, or did not answer)

16. My parents (or guardians) think that school is:

92.8%	Very important
6.7%	Important
.3%	Not important
.2%	Missing

17. Have your parents (or guardians) visited the school this year?

60.4%	Yes
34.5%	No
5.2%	Missing

19. Check the 3 most important adults in your life.

1st	Mother (97.0%)
2nd	Father ((83.5%)
3rd	Other relative (55.6%)
	A teacher (14.6%)
	A coach (2.8%)
	Other (15.2%)

20. What are most of your grades like in your classes? (Two responses keyed)

A's	32.8%		
B's	35.3%	+	22.7%
C's	20.9%	+	12.3%
D's	4.0%	+	3.4%
F's	2.2%	+	.9%

21. What do you think the teacher's job is in this school. Check the 3 most important things.

1st	To help us learn (98.1%)
	To be our friend (41.2%)
2nd	To teach us right from wrong (77.4%)
	To take care of us (10.7%)
	To make us behave (40.9%)
	Other (11.2%)

22. What do you think the principal's job is in this school? Check the 3 most important things.

1st	To run the school
2nd	To make sure that students are safe
3rd	To help the students

23. What do you think the student's job is in this school? Check the 3 most important things.

1st	To get an education
2nd	To study hard
3rd	To do my best

24. If you had a serious personal problem, is there any adult in this school you would go to for help? Check one answer only.

37.7%	No
28.7%	Teacher
15.2%	Guidance Counsellor
4.6%	Nurse
1.0%	Director of Instruction
7.3%	Principal
1.1%	Coach
4.4%	Other
2.3%	Missing

25. Are the rules of discipline of this school clear to you?

86.7% Yes 12.3% No 1.0% Missing

26. In the last year, have you been suspended?

13.3% Yes 85.5% No 1.4% Missing

27. What does this school expect you to do? Check 3 things.

1st	To study hard (84.2%)
	To get along with others (37.3%)
3rd	To do my best (55.8%)
2nd	To get good grades (70.1%)
	To help others (7.7%)
	To behave (36.5%)

28. In the last year, have you been punished by your teachers?

48.2%	Never
44.0%	Sometimes
5.8%	A lot
1.9%	Missing

29. How do most teachers in this school punish students?

77.0%	Keep students after school/class
1.5%	Give students extra work
7.4%	Send students to the principal's office
.9%	Keep students from recess and gym
2.7%	Talk to students privately
.9%	Talk to students in front of everyone
4.7%	Yell at students
3.4%	Other
1.6%	Missing

30a. In the last year, has the school presented you with anything for doing well?

44.1% Yes 52.1% No 3.8% Missing

30b. If Yes, what was it for?

1st	Academics
2nd	Other (perfect attendance, computer work)
3rd	Sports
4th	Art
5th	Music
6th	Drama

31. Check the special things teachers do for students when they do well. Check all that apply.

1st	Write nice comments on tests and homework
2nd	Put up my work in the room
3rd	Give out small but fun prizes
4th	Send nice letters home
5th	Other

32a. Have you been rewarded by your teacher for doing well? Missing-61

55.2% Yes 41.0% No 3.8% Missing

32b. If yes, what was it for?

1st	Classwork
2nd	Good conduct
3rd	Tests
4th tie	Homework
4th tie	Helping out
6th	Other

33. Do you like to come to school?

78.9% Yes 16.9% No 4.2% Missing

34. Do you feel safe at school?

69.1% Yes 25.2% No 5.8% Missing

35. Please circle the number below to show how important the following items are to you.

	not important		sort of important		very important
Item	1	2	3	4	5
A. Family	.4%	.4%	2.7%	4.3%	92.1%
B. Being rich	24.5%	11.4%	35.2%	10.6%	18.2%
C. Friends	3.6%	4.9%	26.8%	22.4%	42.2%
D. Future education	.9%	1.6%	5.3%	8.8%	83.4%
E. Having fun	8.4%	9.9%	33.1%	21.2%	27.4%
F. Getting good grades	.7%	.6%	5.1%	14.9%	78.7%
G. Feeling safe	1.7%	2.3%	9.1%	18.5%	58.4%
H. Helping others	3.2%	6.2%	27.4%	28.4%	34.7%
I. Having a job now	12.8%	8.9%	24.5%	17.5%	36.3%
J. Future job	1.1%	.8%	5.1%	9.7%	83.4%

36. Please circle the number below to show how students act in your school.

Item	never happens		happens sometimes		happens a lot
missing	1	2	3	4	5
Students:					
A. Help out at school	11.4%	10.6%	53.8%	11.6%	12.6%
B. Help plan school activities	22.7%	15.0%	34.2%	16.1%	12.0%
C. Take care of school property	30.1%	16.6%	27.9%	10.3%	15.1%
D. Get along with each other	6.6%	10.4%	36.4%	22.1%	24.5%
E. Make friends with students of other racial/ethnic groups	6.3%	7.2%	27.8%	20.8%	38.0%
F. Show respect for teachers	10.1%	12.0%	33.6%	16.6%	27.7%
G. Help other students learn	15.2%	15.7%	34.4%	17.6%	17.0%
H. Get into school activities and	18.4%	11.7%	29.5%	19.1%	21.3%
I. Compliment other students for good work	20.1%	15.0%	30.5%	17.0%	17.4%
J. Help make class rules	41.1%	17.7%	20.6%	9.7%	11.0%
K. Decorate classrooms and halls	15.5%	13.6%	31.3%	17.8%	21.9%
L. Help other students with personal problems	26.0%	16.4%	27.9%	14.0%	15.8%
M. Make friends with students who are new to the school	4.7%	7.8%	30.6%	22.7%	34.2%
N. Help students who don't speak English talk to others	21.3%	11.7%	27.4%	14.8%	24.8%

37. Please circle the number below to show how you feel about the following items.

Item	never happens		happens sometimes		happens a lot
	1	2	3	4	5
In this school, students:					
A. Steal things from others	31.7%	12.9%	28.7%	06.4%	20.3%
B. Destroy school property	27.7%	11.2%	24.5%	10.4%	26.3%
C. Write graffiti (write on walls)	26.2%	10.3%	18.4%	10.3%	34.9%
D. Bad-mouth other students	13.9%	08.2%	19.0%	12.9%	46.1%
E. Bully other students	20.9%	10.2%	21.2%	15.1%	32.6%
F. Fight with other students	14.0%	10.0%	23.1%	14.4%	38.5%
G. Make racial insults	24.2%	11.7%	23.0%	13.1%	27.9%
H. Tease students who get good grades	31.2%	10.7%	19.9%	13.2%	25.0%
38. In your school, students:					
A. Cut class	29.4%	12.0%	27.4%	07.8%	23.3%
B. Cut school	32.3%	13.0%	24.5%	10.1%	20.1%
C. Hit teachers	60.8%	13.8%	14.5%	04.8%	06.1%
D.Swear or use dirty words	17.4%	09.5%	17.9%	09.4%	45.7%
E. Use illegal drugs	66.0%	11.4%	13.0%	03.5%	06.1%
F. Drink alcohol	66.1%	11.3%	12.0%	04.4%	06.2%
G. Copy homework	16.8%	12.1%	21.9%	12.0%	37.2%
H. Cheat on tests	31.3%	12.9%	20.9%	09.8%	25.0%
I. Disturb class	18.9%	10.6%	20.8%	14.0%	35.7%
J. Smoke in school	60.3%	09.8%	12.8%	04.7%	12.4%

39. Please circle the number below to show how you feel about the following items.

Item	none of the teachers		half of the teachers		all of the teachers
	1	2	3	4	5
In this school, how many teachers:					
A. Tell students to try hard to do better on tests?	02.9%	03.8%	22.6%	12.8%	57.9%
B. Tell students to try & get better grades than their classmates?	28.5%	11.1%	21.6%	12.0%	26.8%
C. Do not care if students get bad grades?	53.0%	13.5%	18.4%	05.4%	09.7%
D. Tell students to do extra work so that they can get better grades?	06.9%	08.0%	26.5%	17.7%	41.0%
E. Make students work hard to get good grades?	05.7%	08.3%	20.6%	19.4%	46.0%
F. Try to help students who do badly on their school work?	08.6%	06.4%	17.9%	19.7%	47.4%
G. Think learning is important?	02.0%	02.7%	08.3%	12.0%	74.9%
H. Allow students to choose what they want to work on	42.0%	16.4%	24.1%	07.9%	09.6%
I. Expect students to work out assignments on own?	15.0%	10.6%	26.4%	15.0%	32.9%

40. Please circle the number below to show how you feel about the following items.

Item	not important at all		sort of important		very important
	1	2	3	4	5
It is important that teachers:					
A. Help me do as well as I can on tests.	03.3%	02.9%	16.3%	14.7%	62.9%
B. Teach me about right and wrong.	06.2%	06.4%	17.2%	15.8%	54.3%
C. Show me how to get along with other people.	08.5%	08.5%	23.2%	18.9%	40.8%
D. Discuss drug abuse.	10.9%	04.5%	12.0%	12.1%	60.5%
E. Teach me how to read and write well.	04.1%	02.2%	08.6%	13.0%	72.1%
F. Make school a pleasant place to be.	03.4%	03.9%	17.1%	19.4%	56.3%
G. Discuss teenage pregnancy.	16.0%	06.3%	17.3%	14.9%	45.6%
H. Discuss suicide.	16.5%	07.6%	18.6%	13.6%	43.8%
I. Care about my future.	05.1%	03.6%	09.6%	12.2%	69.4%

41. Please circle the number below to show how you feel about the following items.

Item	strongly disagree 1	disagree 2	agree 3	strongly agree 4
In my school,				
A. There are unfriendly cliques(groups).	13.6%	24.3%	43.1%	19.0%
B. Students help each other.	06.6%	21.6%	53.8%	18.1%
C. Teachers give students extra help with their school work.	05.0%	12.5%	48.6%	33.9%
D. Students try to help each other with their school work.	07.7%	20.4%	50.5%	21.4%
E. Teachers seem to like the principal.	06.4%	14.0%	48.0%	31.6%
F. Teachers seem to like each other.	04.1%	11.2%	50.5%	34.2%
G. Teachers seem to like the students.	07.0%	18.2%	49.7%	25.1%
H. Students here learn a lot more than students from other schools.	16.7%	37.1%	29.5%	16.7%
I. Students here are expected to do homework 4-5 times a week.	09.4%	14.9%	39.2%	36.6%
J. Teachers care a lot more about their students than teachers from other schools.	11.5%	28.8%	35.3%	24.5%
K. Most students feel very close to their teachers.	16.3%	23.7%	37.1%	22.9%

APPENDIX B.5

Examples of Volunteer Service Offered by Students

Serve meals at the Pine St. Inn (for homeless men)
Edit a movie
Work in a store
Help older people with grocery shopping
Helping a sick lady and her kids
Going to the store for elders
Help my aunt babysit
Going to nursing homes
Helping elderly people at hospitals
Babysitting underprivileged kids.
Helped with multicultural fair
Walk for Hunger
Help at YMCA
Clean up my mother's house
Help my neighbors fix their house
Help clean the park
Help people learn to swim
Help at church
Help people with groceries
Do gardening and yardwork
Pass out flyers
Help at library
Clean Chandler's Pond
Help at Salvation Army

TOPS

TEST OF PROBLEM SOLVING

This booklet asks questions about how you would solve problems. The problems are like those you might find in everyday life, in or out of school.

There are 31 questions in all. Each one has four possible answers. Please choose the answer which you think is best. Mark your answer on the separate answer sheet by filling in the circle having the same letter as the answer you choose. Here are two examples:

1. Which of the following is an animal?
   - A. Bed
   - B. Box
   - C. Chair
   - D. Dog

Since only the dog is an animal, you should have chosen letter D for the first sample question. You would show your answer by blackening in the circle on you answer sheet with the letter D. It should look like this:

1 A B C ●

Here is the second sample question:

2. What is the middle of the day called?
   - E. Morning
   - F. Noon
   - G. Evening
   - H. Midnight

Since the middle of the day is called "noon," you should have chosen letter F. Your answer should look like this:

2 E ● G H

Make your answer marks heavy and black. Mark only one answer for each question. Please answer all of the questions.

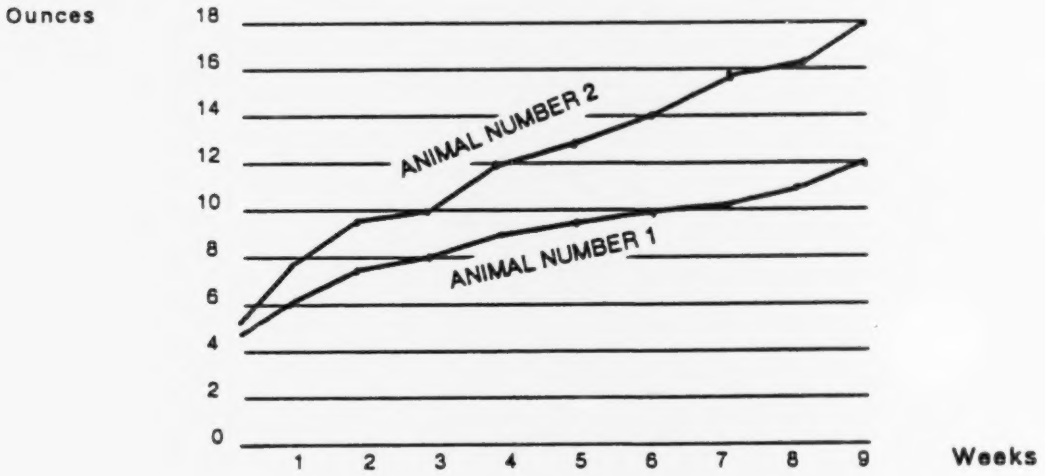
PETS IN THE CLASSROOM

Mrs. Boyd's class kept guinea pigs and tropical fish in their classroom.

1. Trudy's family gave the class two little guinea pigs and two cages. The students wanted to find out if dark whole-wheat bread is better for health and growth than white bread. How could they test this?

   A. Give both guinea pigs white bread.
   B. Give both guinea pigs whole-wheat bread.
   C. Give one guinea pig whole-wheat bread and the other white bread.
   D. Give one guinea pig whole-wheat bread and the other no bread at all.

The students decided to give the two guinea pigs different diets. They weighed the new pets each Friday. They kept a growth record and made a chart.



2. From this chart, tell what happened to the guinea pigs.

   E. Number 1 gained more than number 2.
   F. Number 2 gained more than number 1.
   G. Both gained the same amount of weight.
   H. Number 2 lost weight.

3. From this chart, what was the difference in weight between the two guinea pigs after nine weeks?

    A. Number 1 weighed 6 ounces more than number 2.
    B. Number 2 weighed 18 ounces more than number 1.
    C. Number 2 weighed 6 ounces more than number 1.
    D. Number 2 weighed 12 ounces more than number 1.

4. Fred took one guinea pig home from school and fed him properly over the weekend. The guinea pig seemed calm and rested when Fred returned it to school on Monday morning. Carl took the other one home, but he forgot to feed it. On Monday morning that guinea pig ran around the cage and bit Carl's fingers. What do you think the students learned from this report?

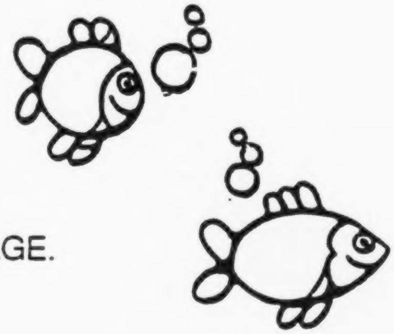
    E. Guinea pigs can live for days without food.
    F. Guinea pigs sleep when they are hungry.
    G. Guinea pigs fight each other for food.
    H. Hunger changes a guinea pig's actions.

5. One afternoon the students were looking at the colorful, tiny, tropical fish in their aquarium. Tropical fish are found naturally in waters near the equator. Maria asked: "Why is the water in the aquarium heated for these fish?" Which classmate gave the best answer?

    A. Jose said: "To keep the water from freezing."
    B. Anna said: "To kill harmful germs which might be in the water."
    C. Clyde said: "To keep the water clean and clear for the fish."
    D. Judy said: "To give the fish a home like the one they came from."

6. The students wanted to add more tropical fish to the aquarium. They learned from the expert at the pet store that certain fish couldn't live together. The red fish would eat the blue fish; the blue fish would eat the yellow fish but not the red fish; and the yellow fish only eat plants. Which color fish should the children put in the same aquarium?

    E. Red and blue fish
    F. Red and yellow fish
    G. Blue and yellow fish
    H. No two colors can live together.



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BIKE TRANSPORTATION

Lots of students like to ride their bikes to the King School, but there have been some bike accidents this year. The students in Mr. Brown's class want to try to make it safer and easier for students to ride bikes to school.

7. If Mr. Brown's class wants to help make bike riding safer, what information below will be most helpful to them.

   A. What kinds of bicycles the students have.
   B. Where they bought the bikes
   C. Why the bike accidents happened.
   D. How many bike accidents there were.

8. The class invited a policeman to explain bike safety rules. Later John and Jake went to the library to look up bike safety rules in some books. They found three safety rules which the policeman did not tell them. What do you think they should do?

   E. Tell the policeman he missed three rules.
   F. Use only the rules from the book.
   G. Put all the rules together in one list.
   H. Pick the rules they like the best.

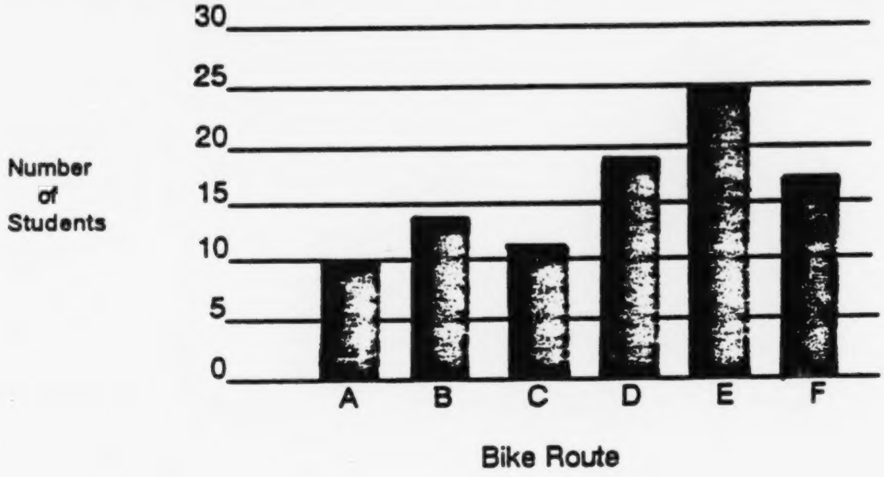
9. John's group decided to teach bike safety rules to other kids. What should they do to find out how much the students know about bike safety?

   A. Make a test of the rules and give it to the students.
   B. Graph the number of kids who have had accidents.
   C. Ask the students if they ride bikes safely.
   D. Make a list of the safety rules and ask each student to read it.

10. Jake's group wanted to find out if the students follow the rules for bike safety. What should they do to answer this question?

   E. Give a written test on the rules.
   F. Give a questionnaire on what the students do.
   G. Ask the students face to face what they do.
   H. Watch them while they ride their bikes.

11. Tina's group wanted to find out which bicycle routes the students use to get to and from school. They got this information from all the students who rode their bikes to school. Then they made a graph. Which three routes are used the most?



A. A, B, and E.
B. B, D, and E.
C. C, D. and E.
D. D, E, and F.

12. The students decided to concentrate on the three routes which the bike riders use most. What additional information should the students get about these routes?
E. How many bike accidents happened on each route.
F. How many students keep their bikes in good condition.
G. How many students take the bus instead.
H. Which route is the shortest one to school.

PLEASE GO TO THE NEXT PAGE.

THE WINDOW SILL GARDEN IN MRS. JACKSON'S CLASS

The students in Mrs. Jackson's science class were conducting experiments on conditions that affect the growth of plants. First, they wanted to find out if plants grow better in natural sunlight or under electric grow lights. They considered two hypotheses. (Hypotheses are possible explanations.)

Hypothesis I: Plants grow better in natural sunlight.
Hypothesis II: Plants grow better under electric grow lights.

They put one plant on the window sill and an identical plant under grow lights on a shelf away from the window. The students kept a notebook on the growth of the two plants. In the next four questions, items 13 to item 16, determine which hypothesis is supported by notes the students made.

13. After two weeks, the plant grown in natural sunlight was 8 inches tall and the plant grown under grow lights was 5 inches tall. Which hypothesis does this information support?

    A. Only Hypothesis I
    B. Only Hypothesis II
    C. Both Hypothesis I and Hypothesis II
    D. Neither Hypothesis I nor Hypothesis II

14. The leaves were smaller in the plant grown in natural sunlight than in the plant grown under grow lights. Which hypothesis does this observation support?

    E. Only Hypothesis I
    F. Only Hypothesis II
    G. Both Hypothesis I and Hypothesis II.
    H. Neither Hypothesis I nor Hypothesis II.

15. Both of the plants developed tiny yellow spots on the under sides of the leaves. Which hypothesis does this information support?

    A. Only Hypothesis I
    B. Only Hypothesis II
    C. Both Hypothesis I and Hypothesis II
    D. Neither Hypothesis I nor Hypothesis II

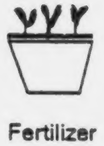
16. After ten weeks, the plants were cut off at the soil line, washed, and weighed. The plant grown in natural sun light weighed 15 grams, and the plant grown under grow lights weighed 11 grams. Which hypothesis does this information support?

    E. Only Hypothesis I
    F. Only Hypothesis II
    G. Both Hypothesis I and Hypothesis II
    H. Neither Hypothesis I nor Hypothesis II

17. Tom wanted to test whether fertilizer would really make plants grow better. He thought of three different experiments.

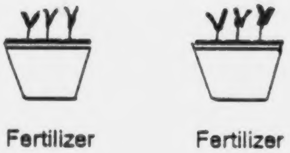
Experiment #1: Add fertilizer to one pot of soil. Plant three bean seeds in the pot. Give each plant the same care, and watch their growth.

#1



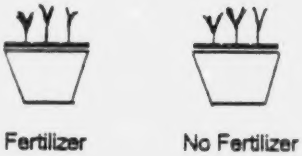
Experiment #2: Get two pots of soil. Add fertilizer to the soil of both pots. Plant three bean seeds in each pot. Give the same care, and watch the plant growth.

#2



Experiment #3: Get two pots of soil. Add fertilizer to one of the pots. Plant three been seeds in each pot. Give each pot the same care and watch the plant growth.

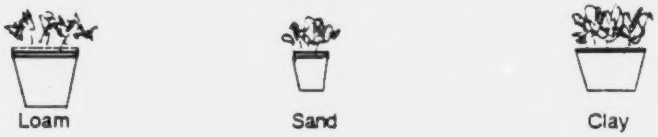
#3



Which experiment would show if the fertilizer was good for the plants?

A. Experiment #1
B. Experiment #2
C. Experiment #3
D. None of the experiments would tell whether the fertilizer was helping.

18. Tanya wanted to see which type of soil would be best for growing plants from seeds. She found three flower pots and filled the first with loam, the second with sand, and the third with clay. Then she planted three bean seeds in each pot. Tanya placed the pots side by side on the window sill and gave each pot the same amount of water.



The bean plants grew best in the loam. Why did Mrs. Jackson say this experiment was NOT a good experiment and did not prove tht loam was the best soil for plant growth?

E. The plants in one pot got more sunlight than the plants in the other pots.
F. One pot should have been placed under grow lights.
G. The students should have tried different kinds of seeds.
H. The amount of soil in each of the pots was not the same.

A BUSY CORNER

Most students walk to the Franklin School, and they have to cross the street at the corner of Lincoln Avenue and Broadway. This is a very busy intersection, with speeding cars and no traffic light or stop sign. Although there is a crossing guard, she is afraid there will be a serious accident.

19. Mrs. Carter's class talked about the problem one morning. The students asked many questions. Which question do you think was the most important for solving the problem?

A. What time of day is the crossing guard on duty?
B. Who has the right of way, drivers or walkers?
C. What do the red, yellow, and green colors of a traffic light mean?
D. How can the intersection be made safer?

20. They decided to try to do something about the problem. What would be the most important thing to work on?

E. Have all the parents drive the kids to school.
F. Ask for an extra crossing guard.
G. Figure out how to stop the speeding cars.
H. Find out how many others are afraid.

21. One group wanted to measure how long it takes to cross the street. How should they do it?

A. Measure the width of the street with a tape measure.
B. Time the cars going by with a stop watch.
C. Time the kids going across with a stop watch.
D. See who can cross the fastest.

22. Carlos and Fred decided to time Lee crossing the street. Carlos said it took Lee eight seconds; Fred said it took ten. They both used stop watches. What should they do now?

E. Try again, using new stop watches.
F. Try again, using the teacher's wrist watch.
G. Try again, both starting when Lee steps off the curb and stopping when he steps on the curb on the other side.
H. Try again, but this time tell Lee to run from curb to curb in exactly eight seconds.

23. Carlos and Fred timed adults and students from each grade as they crossed the street. They found that the average crossing time was 11 seconds. What would you suggest to make the crossing safer?

A. Put up a walk light that stops cars for 11 seconds every two minutes.
B. Put up a walk light that stops cars for 15 seconds every two minutes.
C. Teach everyone to cross the street in less than 11 seconds.
D. Have the crossing guard stop traffic every 11 seconds.

24. Mrs. Carter's class has written a report about their study of the busy corner. The report includes recommendations based on the data they collected. What do you think they should do now?

E. Get permission to tell other children in the Franklin School about their project.
F. Ask Mrs. Carter to grade the students for their work on the project.
G. Ask the principal for materials to build a traffic light.
H. Invite someone from the police department to listen to their report.

PLEASE GO TO THE NEXT PAGE.

A CLASSROOM TEMPERATURE CHART

Mr. DaCosta's classes kept a record of hourly temperatures indoors and outdoors, on a fall day. Their data looked like this:

Temperature Readings in F° on October 1st

	8 a.m	9 a.m.	10 a.m.	11 a.m.	12 noon	1 p.m.	2.p.m.	3.p.m.
Indoors	62°	71°	80°	75°	72°	74°	75°	72°
Outdoors	61°	65°	68°	72°	78°	82°	79°	75°

Use the information from this chart to answer questions 25 through 31.

25. At what time was the room too cold for comfort?

A. 8 a.m.
B. 9 a.m.
C. 1 p.m.
D. 3 p.m.

26. What time of day was it necessary to open the windows to make the classroom comfortable?

E. 8 a.m.
F. 9 a.m.
G. 10 a.m.
H. 12 noon

27. When was the increase in outdoor temperature the greatest?

A. Between 8 a.m. and 9 a.m.
B. Between 9 a.m. and 10 a.m.
C. Between 11 a.m. and 12 a.m.
D. Between noon and 1 p.m.

28. On a day like this, when would students most likely need a sweater?

E. Only in the morning
F. Only in the afternoon
G. Outdoors throughout the day
H. Indoors throughout the day

29. If a student wore a sweater or jacket to class, between what hours would he probably want to take it off?

A. Between 9 a.m. and 10 a.m.
B. Between 10 a.m. and 11 a.m.
C. Between 10 a.m. and 12 noon
D. Between 2 p.m. and 3 p.m.

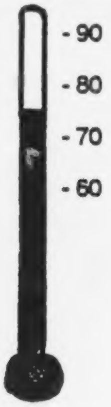
30. When was there the greatest difference between indoor and outdoor temperature?

E. 9 a.m.
F. 10 a.m.
G. 12 noon
H. 1 p.m.

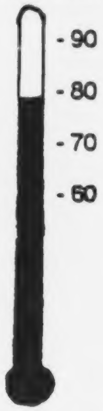
31. The thermometers drawn below show the indoor and outdoor temperatures for what time of day?

A. 9 a.m.
B. 11 a.m.
C. 2 p.m.
D. 3 p.m.

Indoor Thermometer



Outdoor Thermometer



THE END.

THANK YOU FOR ANSWERING THESE QUESTIONS.

EXAMEN DE RESOLVER PROBLEMAS

Este libreto hace preguntas en cuanto a cómo resuelves problemas. Los problemas son parecidos a aquellos que encuentras todos los días, en o fuera de la escuela.

Encontrarás 31 preguntas. Cada una tiene cuatro posibles respuestas. Por favor, escoge la mejor contestación. Marca tus respuestas en el otro papel oscureciendo el círculo que tiene la misma letra de la respuesta que escojas. Aquí tienes dos ejemplos:

1. ¿Cuál de los siguientes es un ánimal?

A. cama
B. caja
C. silla
D. Perro

Como solamente el perro es un ánimal, debes haber escogido la letra D para la primer pregunta de ejemplo. Demostrarás tu respuesta oscureciendo el círculo en tu hoja de respuestas con la letra D. Debe verse de la siguiente manera.

1. A B C ●

Aquí está el segundo ejemplo:

2. ¿Cómo se le llama a la mitad del día?

E. Mañana
F. Medio-día
G. Tarde
H. Media-noche

Como sabemos que se le llama "medio-día", debes haber escogido la letra F. Tu respuesta debe verse de la siguiente manera.

2. E ● G H

Has tus marcas bien fuerte y negras. Marca una respuesta solamente por cada pregunta. Por favor, contesta todas las preguntas.

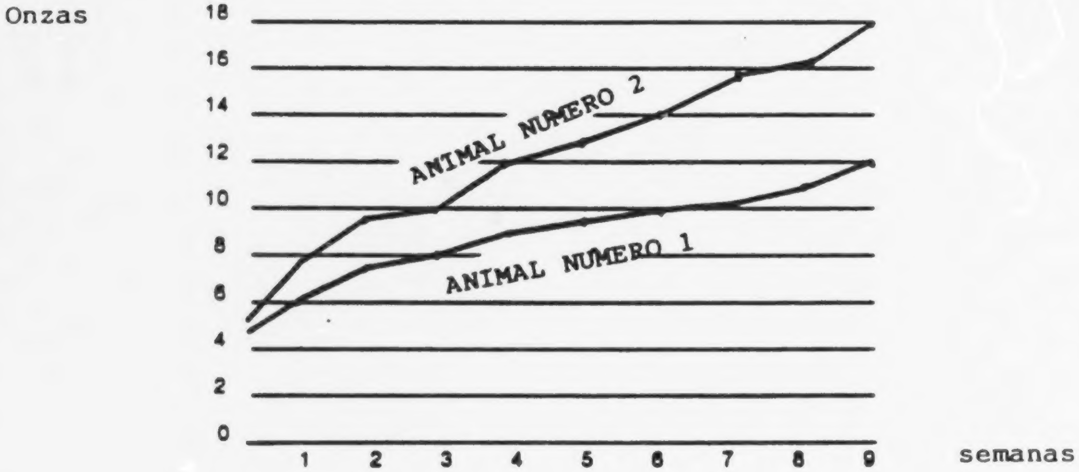
ANIMALES DOMESTICOS EN EL SALON DE CLASE

La clase de la Sra. Boyd tenía conejillos de Indias y peces trópicales en su salón de clase.

1. La familia de Trudy le regaló a la clase dos conejillos de Indias y dos jaulas. Los estudiantes querían saber si el pan de trigo-puro era mejor que el pan blanco para la salud y el crecimiento. Como podrían averiguarlo?

   A. Dándole a los dos conejillos pan blanco.
   B. Dándole a los dos conejillos pan de trigo-puro.
   C. Dándole a un conejillo pan de trigo-puro y al otro pan blanco.
   D. Dándole pan de trigo-puro a un conejillo y no darle nada al otro.

Los estudiantes decidieron darle a los dos conejillos dietas diferentes. Ellos pesaban los ánimales domésticos todos los viernes. También mantenían un registro de crecimiento e hicieron una esquema gráfica.



2. Dejándote llevar por este esquema gráfico, cuénta lo que le pasó a los conejillos de Indias.

   E. Número 1 aumentó más que número 2.
   F. Número 2 aumentó más que número 1.
   G. Los dos pesaron lo mismo.
   H. Número 2 rebajó de peso.

3. Del esquema gráfico, cuál fué la diferencia en peso entre los dos conejillos después de nueve semanas?

   A. Número 1 pesó 6 onzas más que número 2.
   B. Número 2 pesó 18 onzas más que número 1.
   C. Número 2 pesó 6 onzas más que número 1.
   D. Número 2 pesó 12 onzas más que número 1.

4. Fred se llevó un conejillo de la escuela a la casa y lo alimentó apropiadamente por un fin de semana. El conejillo lucía en calma y descansado cuando Fred lo devolvió a la escuela el lunes en la mañana. Carl se llevó el otro conejillo a su casa, pero se olvidó de alimentarlo. El lunes en la mañana, el conejillo corría alrededor de la jaula y mordió a Carl en los dedos. ¿Qué crees que los estudiantes aprendieron de este reporte?

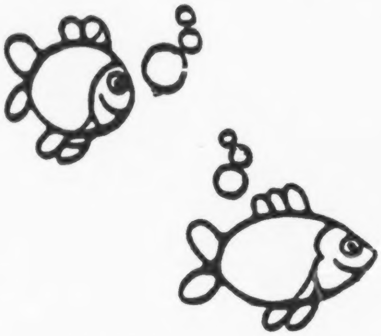
   E. Conejillos de Indias pueden vivir sin comer por días.
   F. Conejillos de Indias duermen cuando tienen hambre.
   G. Conejillos de India pelean unos con otros por comida.
   H. El hambre cambia las acciones de los conejillos.

5. Una tarde los estudiantes estaban mirando su pecera llena de pequeños peces trópicales de muchos colores. Los peces trópicales se encuentran en aguas cerca del ecuador. María preguntó: " Por qué se calienta el agua de la pecera para estos peces?" ¿Quién de los estudiantes dió la respuesta correcta?

   A. Jose dijo: "Para que el agua no se frise".
   B. Ana dijo: "Para matar gérmenes que pueden estar en el agua".
   C. Clyde dijo: "Para mantener el agua limpia y clara para los peces".
   D. Judy dijo: "Para darles un hogar como el que ellos tenían".

6. Los estudiantes querían añadir más peces en la pecera. Ellos aprendieron de los expertos en la tienda de ánimales domésticos que algunos peces no pueden vivir juntos. El pez rojo se come al pez azul; el pez azul se come al pez amarillo pero no al pez rojo; y el pez amarillo solamente come plantas. ¿Qué color de peces los estudiantes pueden poner juntos en la pecera?

   E. Peces rojos y azules
   F. Peces rojos y amarillos
   G. Peces azules y amarillos
   H. Dos colores no pueden vivir juntos.



POR FAVOR , PASA A LA PROXIMA PAGINA

BICICLETAS COMO TRANSPORTE

A muchos estudiantes les gusta guiar sus bicicletas a la escuela King, pero han habido algúnos accidentes de bicicletas este año. Los estudiantes de la clase de Mr. Brown quieren tratar de hacerlo más seguro y fácil para los estudiantes que guian sus bicicletas a la escuela.

7. Si los estudiantes de Mr. Brown desean hacer que el transporte en bicicleta sea más seguro, ¿cuál de la información provista más adelante **sería de mas ayuda** para ellos.

   A. La clase de bicicletas que los estudiantes tienen.
   B. Dónde compraron sus bicicletas.
   C. Por qué suceden los accidentes de bicicletas.
   D. Cuántos accidentes de bicicletas han tenido.

8. La clase invitó a un policia para que explicara las reglas de seguridad al manejar bicicletas. Después, John y Jake fueron a la biblioteca a buscar libros que tuvieran información sobre estas reglas. Ellos encontraron tres reglas de seguridad que el policia no había mencionado. ¿Qué crees que ellos deben hacer?

   E. Decirle al policia que se le olvidaron tres reglas.
   F. Usar solamente las reglas que encontraron en los libros.
   G. Poner todas las reglas juntas en una lista.
   H. Escoger las reglas que más le gusten.

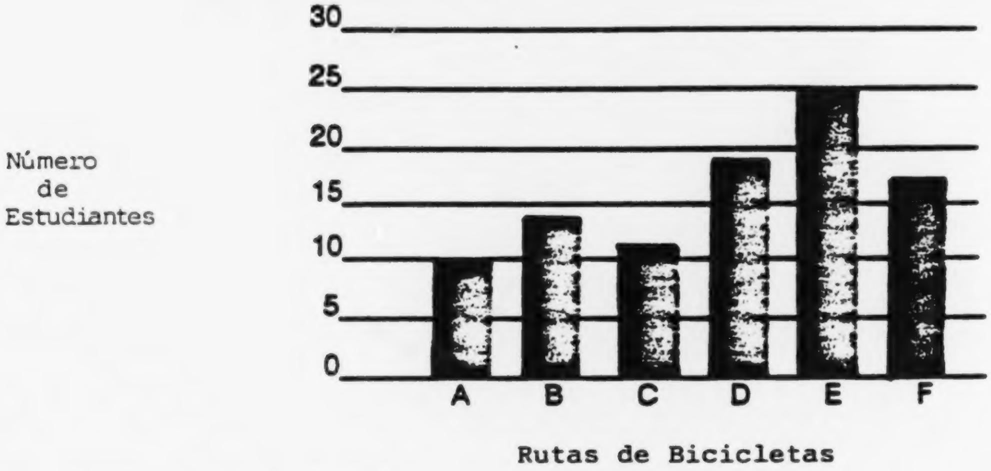
9. El grupo de John decidió enseñar a otros niños las reglas de seguridad. ¿Qué deben ellos hacer para averiguar cuanto saben los estudiantes a cerca de el manejo de bicicletas con seguridad?

   A. Hacer un examen de reglas y darcelo a los estudiantes.
   B. Hacer un esquema gráfico del número de estudiantes que han tenido accidentes.
   C. Preguntar a los estudiantes si ellos manejan sus bicicletas con medios de seguridad.
   D. Hacer una lista de las reglas de seguridad y pedirle a los estudiantes que la lean.

10. El grupo de Jake quería saber si los estudiantes habían seguido las reglas para seguridad al manejar sus bicicletas. ¿Qué deben ellos hacer para contestar esta pregunta?

    E. Dar un examen escrito de las reglas.
    F. Dar un cuestionario de lo que los estudiantes hacen.
    G. Preguntar a los estudiantes personalmente lo que ellos hacen.
    H. Observarlos mientras ellos manejan sus bicicletas.

11. Tina quería saber las rutas que los estudiantes seguían en sus bicicletas para ir a la escuela y regresar. Ellos obtuvieron esta información de los estudiantes que viajaban en bicicleta. Después, ellos hicieron este esquema gráfico. De las tres rutas, ¿cuál se usa más?



A. A, B y E
B. B, D y E
C. C, D y E
D. D, E y F

12. Los estudiantes decidieron concentrarse en las tres rutas que más usan los que viajan en bicicleta. ¿Qué otra información deberían obtener los estudiantes a cerca de estas rutas?

E. Cuántos accidentes de bicicletas ocurre en cada ruta.
F. Cuántos estudiantes mantienen sus bicicletas en buenas condiciones.
G. Cuántos estudiantes prefieren viajar en autobús.
H. Cuál es la ruta mas corta a la escuela.

POR FAVOR, PASA A LA PROXIMA PAGINA

EL JARDIN DE UMBRAL EN LA VENTANA DEL SALON DE MRS. JACKSON

Los estudiantes en el salón de ciencia de Mrs. Jackson estaban haciendo experimentos de las condiciones que afectan el crecimiento de las plantas. Primero, querían saber si las plantas crecen mejor bajo los rayos del sol o bajo luces eléctricas. Ellos consideraron dos hipótesis. (Hipótesis significa explicaciones posibles).

Hipótesis I: Las plantas crecen mejor bajo los rayos del sol.

Hipótesis II: Las plantas crecen mejor bajo luz eléctrica.

Ellos pusieron una planta en el umbral de la ventana y una planta idéntica bajo luz eléctrica lejos de la ventana. Ellos mantuvieron una libreta con el crecimiento de las dos plantas. En las cuatro preguntas siguientes, del 13 al 16, determina cuál de las hipótesis es apoyada por las notas que los estudiantes hicieron.

13. Después de dos semanas, la planta que tenían bajo los rayos del sol medía 8 pulgadas de alto y la planta bajo luz eléctrica medía 5 pulgadas. ¿A Cuál de las dos hipótesis apoya esta información.

A. Solamente Hipótesis I
B. Solamente Hipótesis II
C. Las dos- Hipótesis I y II
D. Ningúna de las dos Hipótesis

14. Las hojas eran más pequeñas en la planta que creció bajo los rayos del sol. ¿Cuál de las Hipotesis apoya esta observacion?

E. Solamente Hipótesis I
F. Solamente Hipótesis II
G. Las dos - Hipótesis I y II
H. Ningúna de las dos Hipótesis

15. Las dos plantas desarrollaron manchas amarillas debajo de las hojas. ¿Cuál de las Hipotesis apoya esta información?

A. Solamente Hipótesis I
B. Solamente Hipótesis II
C. Las dos - Hipótesis I y II
D. Ningúna de las dos Hipótesis

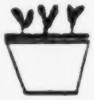
16. Después de diéz semanas, cortaron las plantas desde la superficie de la tierra, las lavaron y las pesaron. La planta que había crecido bajo los rayos del sol pesaba 15 gramos y la planta que creció bajo luz eléctrica pesó 11 gramos. ¿Cuál Hipótesis apoya esta informacion?

E. Solamente Hipótesis I
F. Solamente Hipótesis II
G. Las dos - Hipótesis I y II
H. Ningúna de las dos Hipótesis

17. Tom quería saber si el uso de fertilizantes en verdad hacía que las plantas crecieran mejor. El pensó en tres experimentos diferentes.

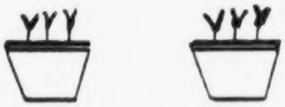
Experimento #1: Ponga fertilizante en un embase con tierra. Siembre dos habichuelas en el embase. Cuídelas de la misma forma y observe su crecimiento.

#1



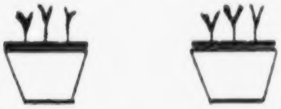
Experimento #2: Consigue dos embases con tierra. Hecha fertilizante en la tierra de los dos embases. Siembra tres semillas de habichuela en cada embase. Cuídalas de la misma forma y observa el crecimiento.

#2



Experimento #3: Consigue dos embases con tierra. Hecha fertilizante a uno de los embases. Siembra tres semillas de habichuela en cada embase. Cuidalas de la misma forma y observa su crecimiento.

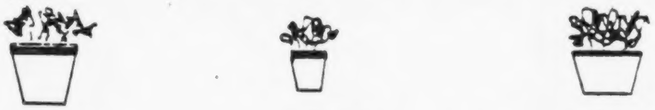
#3



¿Cuál experimento enseñará si el fertilizante fue bueno para las plantas?

A. Experimento #1
B. Experimento #2
C. Experimento #3
D. Ningúno de los experimentos probará si el fertilizante ayudaba.

18. Taña quería saber qué clase de tierra era mejor para que las semillas de plantas crecieran. Ella encontró dos embases con tierra de plantas de flores y llenó el primero con marga, el segundo con arena y el tercero con arcilla. Después, ella sembró tres semillas de habichuela en cada embase. Ella puso los embases uno al lado del otro en la ventana y les dió a cada embase la misma cantidad de agua.



Las semillas de habichuelas crecieron mejor en la marga. ¿Por qué Mrs. Jackson dijo que este **no** era un buen experimento y que no provó que la marga era la mejor tierra para crecer plantas?

E. Una de las plantas recibió más luz del sol que las otras.
F. Uno de los embases debió haberse puesto bajo luz eléctrica.
G. Los estudiantes debieron haber tratado diferentes semillas.
H. No había la misma cantidad de tierra en cada embase.

UNA ESQUINA OCUPADA

La mayoría de los estudiantes caminan a la escuela Franklin y tienen que cruzar la esquina de las avenidas Lincoln y Broadway. Esta es una intersección de mucho tráfico, carros con mucha velocidad y no hay luz de tráfico ni señal de "pare". Aunque hay un guardia que ayuda a cruzar la calle, ella teme que haya un accidente serio.

19. La clase de la Sra. Carter habló de ese problema una mañana. Los estudiantes hicieron muchas preguntas. ¿Cuál de las preguntas tu crees que fue la más importante para resolver el problema?

    A. ¿A qué horas del día se puede conseguir el guardia?
    B. ¿Quién tiene derecho al paso, los chóferes o los peatones?
    C. ¿Qué significan los colores rojo, amarillo y verde en las luces de tráfico?
    D. ¿Cómo podemos hacer de esta una intersección segura?

20. Ellos decidieron que tratarían de hacer algo para resolver el problema. ¿Qué sería lo más importante para que ellos trabajaran?

    E. Hacer que todos los padres lleven sus hijos a la escuela en sus carros.
    F. Pedir que se ponga un guardia adicional.
    G. Averiguar como parar los carros que llevan mucha velocidad.
    H. Averiguar cuánta otra gente tiene miedo.

21. Un grupo quería medir cuánto tiempo tomaba cruzar la calle. Como podrian hacerlo?

    A. Medir el ancho de la calle con una cinta de medir.
    B. Coger el tiempo de los carros que pasan con un reloj de tiempo.
    C. Coger el tiempo de los niños que cruzan con un reloj de tiempo.
    D. Ver quién puede cruzar más rápido.

22. Carlos y Fred decidieron tomar el tiempo de Lee cruzando la calle. Carlos dijo que a Lee le tomó ocho segundos; Fred dijo que le tomó diez. Los dos usaron relojes de medir tiempo. ¿Qué deben hacer ahora?

E. Tratar otra vez, usando relojes nuevos.
F. Tratar otra vez, usando el reloj de su maestro.
G. Tratar otra vez, comenzando desde que Lee baje de la cera y parando cuando el llegue a la cera del otro lado de la calle.
H. Tratar otra vez, pero esta vez, decirle a Lee que corra de una cera a la otra en ocho segundos.

23. Carlos y Fred tomaron el tiempo de adultos y estudiantes de todos grados cruzando la calle. Se dieron cuenta de que por lo general el cruzar la calle se toma once segundos. Que sugerirías para hacer que el cruce sea más seguro ?

A. Poner una luz de tráfico que pare a los carros por 11 segundos de cada dos minutos.
B. Poner una luz de tráfico que pare a los carros por 15 segundcs de cada dos minutos.
C. Enseñar a todo el mundo a cruzar la calle en menos de 11 segundos.
D. Hacer que el guardia pare el tráfico de cada 11 segundos.

24. La clase de la Sra. Carter escribió un reporte a cerca del estudio de la esquina ocupada. El reporte incluye recomendaciones basadas en la información que ellos encontraron. ¿Qué crees que ellos deben hacer ahora?

E. Obtener permiso para decirle a otros niños de la escuela Franklin a cerca de su proyecto.
F. Pedirle a la Sra. Carter que les dé nota a los estudiantes por su trabajo en el proyecto.
G. Pedirle al principal materiales para hacer una luz de tráfico.
H. Invitar a una persona del departamento de policias para que venga a escuchar sobre su reporte.

POR FAVOR, PASA A LA PROXIMA PAGINA

GRAFICA DE TEMPERATURA
EN UN SALON DE CLASES

La clase de el Sr. DaCosta mantuvo un archivo de temperatura de cada hora adentro y fuera en un dia de otono. Su informacion lucia de la siguiente manera.

Lectura de Temperatura en F° el 1ro de octubre

	8 a.m	9 a.m.	10 a.m.	11 a.m.	12 noon	1 p.m.	2.p.m.	3.p.m.
adentro								
afuera	62°	71°	80°	75°	72°	74°	75°	72°
	61°	65°	68°	72°	78°	82°	79°	75°

Usa la informacion en esta grafica para contestar las preguntas del del 25 al 31.

25. A que hora el salon estaba muy frio para ser comodo?

    A. 8 a.m.
    B. 9 a.m.
    C. 1 p.m.
    D. 3 p.m.

26. A que hora del dia era necesario abrir las ventanas para hacer que el salon estuviera comodo?

    E. 8 a.m.
    F. 9 a.m.
    G. 10 a.m.
    H. 12 medio dia

27. Cuando fue mas grande el aumento de temperatura **afuera?**

    A. Entre 8 a.m. y 9 a.m.
    B. Entre 9 a.m. y 10 a.m.
    C. Entre 11 a.m. y 12 a.m.
    D. Entre el medio dia y 1 p.m.

28. En un día como éste,¿cuándo crees que los estudiantes necesitaran un sueter?

E. Solamente en la mañana
F. Solamente en la tarde
G. Afuera todo el día
H. Adentro todo el día

29. Si un estudiante usa un suéter o un abrigo para venir a clases, ¿entre qué horas es más probable que quiera quitárselo?

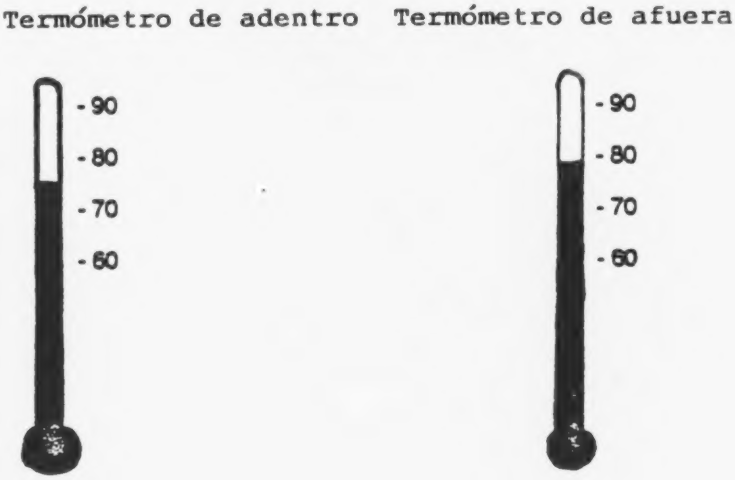
A. Entre 9 a.m. y 10 a.m.
B. Entre 10 a.m. y 11 a.m.
C. Entre 10 a.m. y 12 del medio día
D. Entre 2 p.m. y 3 p.m.

30. ¿Cuándo había la mayor diferencia entre la temperatura de adentro y la de afuera?

E. 9 a.m.
F. 10 a.m.
G. 12 medio día
H. 1 p.m.

31. Los termómetros dibujados abajo enseñan la temperatura de qué hora del día?

A. 9 a.m.
B. 11 a.m.
C. 2 p.m.
D. 3 p.m.



FIN

GRACIAS POR CONTESTAR ESTAS PREGUNTAS

TOPS

TEST OF PROBLEM SOLVING

Quyển tập này gồm có những câu hỏi về những phương thức giải đáp những vấn đề mà các em có thể giăp trong đời sống hàng ngày, trong hoặc ngoài trường học.

Có tất cả 31 câu hỏi. Mỗi câu hỏi có 4 trả lời. Chọn câu trả lời mà em nghĩ là đúng nhất. Và đánh dấu vào bảng trả lời bằng cách điền vào vòng tròn có chữ trường đường. Sau đây là 2 thí dụ:

1. Trong những mục dưới đây, cái nào là động vật?
   - A. Giường ngủ
   - B. Cái hộp
   - C. Cái ghế
   - D. Con chó.

Bởi vì con chó là động vật, em nên chọn chử D trong thí dụ trên. Em sé trả lời bằng cách tô đậm chữ D trong bản trả lời nhơ sau:

1. A B C ●

Thí dụ thứ hai:

2. Thời gian giữa ngày gọi là gì?
   - E. Buổi sáng
   - F. Buổi trưa
   - G. Buổi chiều
   - H. Buổi tối

vì thời gian giữa ngày là buổi trưa, em nên chọn chử F. Câu trả lời của em sẻ giống như sau:

2. E ● G H

Đánh dấu trả lời rõ ràng. Chỉ đánh dấu một trả lời cho mỗi câu hỏi và trả lời tất cả các câu hỏi

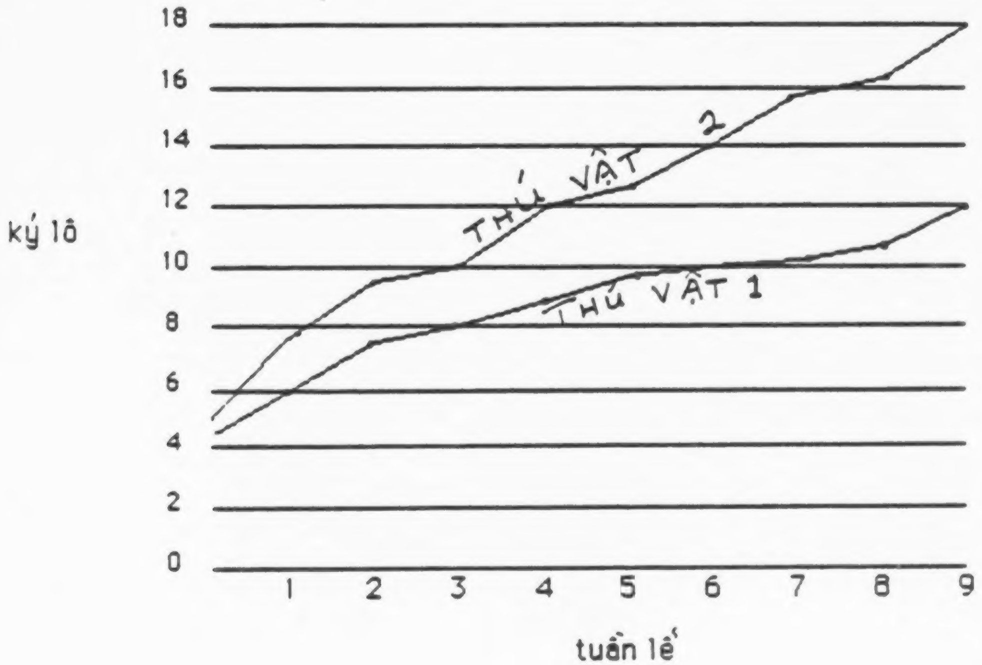
THÚ VẬT TRONG PHÕNG HỌC

Trong lớp học của bà Boyd có hai con heo và những con cá vùng nhiệt đới.

1. Gia đình Trudy tặng cho lớp học hai con heo và hai cái chuồng. Hoc sih muốn biết giữa hai loại bánh mì trắng và bánh mi đen, loại nào thích hợp hơn cho sức khỏe và tăng trưởng. Hoc sinh phải làm thí nghiệm như thế nào?

   A. Cho cả hai con heo ăn bánh mĩ trắng
   B. Cho cả hai con heo ăn bánh mĩ đen
   C. Cho một con ăn bánh mĩ trắng và một con ăn bánh mĩ đen
   D. Cho một con ăn bánh mĩ đen và con còn lại không cho ăn.

   Hoc sinh quyết đinh nuôi 2 con heo bằng hai loai thực phẩm khác nhau. Ho cân cả 2 con vào mỗi ngày thứ sáu. Kết qủa đuộc lưu trữ và họ làm bảng đồ thị như sau:



2. Dựa trên bản đồ thị này, chuyện gĩ đã xảy ra giữa hai con heo

   E. Con heo số 1 cân nặng hon con heo số 2
   F. Con heo số 2 cân nặng hơn con heo số 1
   G. Ca hai con cân nặng bằng nhau
   H. Con heo số 2 bị giảm ký

3. Từ bản đồ thị trên, hai con heo khác biệt bao nhiêu ký-lô sau một thời gian là 5 tuần

A. Con số 1 nặng hơn con số 2 là 6 ký-lô
B. Con số 2 nặng hơn con số 1 là 18 ký-lô
C. Con số 2 nặng hơn con số 1 là 6 ký-lô
D. Con số 1 nặng hơn con số 2 là 12 ký-lô

4. Fred mang 1 con heo về nhà và cho ăn đầy đủ vào ngày cuối tuần. Và mang trả lại lớp vào ngày thứ Hai. Con heo của Fred có vẻ yên lặng và nghỉ ngơi. Carl cũng mang 1 con về nhà nhưng anh ấy quên cho ăn. Vào hôm thứ Hai, con heo của Carl chạy xung quanh chuồng và cắn vào ngón tay của Carl. Theo em nghĩ, hoc sinh học hỏi gì từ những sự kiện trên?

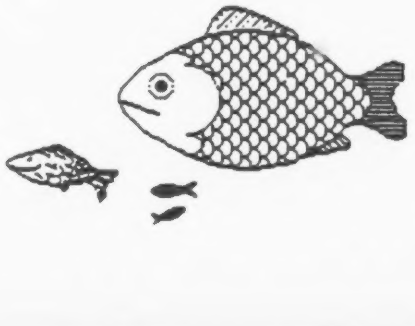
E. Heo có thể sống mà không cần thực phẩm trong vòng vài ngày
F. Heo sẽ ngủ khi nó đói
G. Heo tranh giành nhau về thực phẩm
H. Sự đói làm thay đổi hành động của con Heo.

5. Vào một buổi trưa, hoc sinh nhìn vào những con cá vùng nhiệt đới rực rỡ màu sắc trong hồ cá của lớp. Cá nhiệt đới thường có trong những ao hồ vùng gần đường xích đạo. Maria hỏi: "tại sao nước trong hồ cá phải được sưởi ấm?". Trong những câu trả lời sau, câu trả lời nào đúng nhất?

A. Jose nói: "để giữ cho nước khỏi đông đặc"
B. Anna nói: "để giết vi khuẩn trong nước"
C. Clyde nói: "để giữ cho nước được trong và sạch"
D. Judy nói: "để tạo một môi trường sống thích hợp cho những con cá"

6. Hoc sinh muốn bỏ thêm những con cá nhiệt đới vào trong hồ cá của họ. Họ được những nhà chuyên môn cho biết rằng có những loại cá không thể cùng ở với nhau. Cá đỏ sẽ ăn cá xanh; cá xanh sẽ ăn cá vàng nhưng không ăn cá đỏ; cá vàng chỉ ăn rong rêu. Học sinh nên bỏ những loại cá nào vào cùng một hồ?

E. Cá đỏ và cá xanh
F. Cá đỏ và cá vàng
G. Cá xanh và cá vàng
H. Hai loại cá khác màu không thể sống với nhau.



DI CHUYỂN BẰNG XE ĐẠP

Nhiều học sinh dùng xe đạp để đi đến trường King. Nhưng có vài trường hợp tai nạn xe đạp trong năm nay. Những học sinh trong lớp học của ông Brown cố gắng tạo điều kiện an toàn và dễ dàng cho hoc sinh đạp xe đạp đi học.

7. Nếu lớp học ông Brown muốn giúp cho vấn đề đi xe đạp được an toàn hơn, dữ kiện nào sau đây được hữu dụng nhất

   A. Hoc sinh có những loại xe đạp nào
   B. Hoc sinh mua xe đap ở đâu
   C. Tai sao tai nan xe đạp xảy ra
   D. Bao nhiêu tai nạn đã xảy ra.

8. Hoc sinh mời một cảnh sát viên tới để giải thích những luật lệ an toàn về xe đạp cho học sinh. Sau đó, John và Jake đi đến thư viện và tìm những luật lệ an toàn về xe đạp trong sách. Họ tìm thấy có 3 luật an toàn mà người cảnh sát viên đã không nói tới. Theo em nghĩ, họ nên làm gì?

   E. Báo cho người cảnh sát viên biết rằng ông ta thiếu sót 3 luật.
   F. Chỉ dùng những luật lệ trong sách
   G. Liệt kê tất cả các luật lệ
   H. Chỉ chọn những luật lệ mà họ thích nhất.

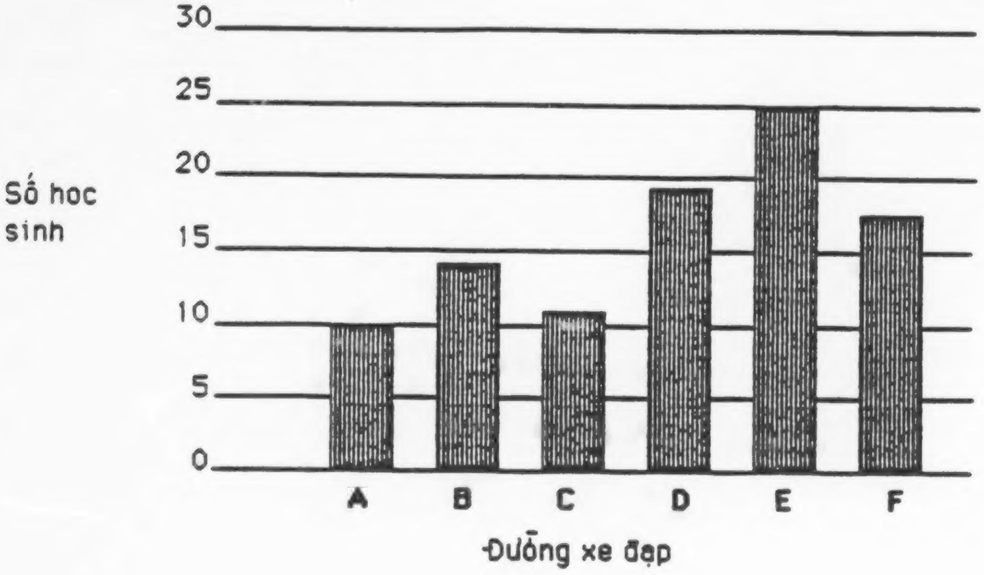
9. Nhóm của John quyết định dạy những luật lệ an toàn cho những trẻ em khác. Họ muốn tìm hiểu về sự hiểu biết về luật an toàn xe đạp của những học sinh khác. Họ phải làm thế nào để tìm hiểu?

   A. Cho hoc sinh làm một bài thi về tất cả các luật lệ
   B. Vẽ một đồ thị về số học sinh bị tai nạn
   C. Hỏi xem hoc sinh có lái xe đạp an toàn hay không
   D. Làm một bản về những luật lệ an toàn và bảo hoc sinh đọc.

10. Nhóm của Jake muốn tìm hiểu xem hoc sinh có tuân theo những luật an toàn về xe đạp hay không. Họ phải làm thế nào?

   E. Cho một bài thi về các luật lệ
   F. Cho những câu hỏi vấn đáp về những gì mà hoc sinh làm
   G. Trực tiếp hỏi học sinh
   H. Theo dõi hoc sinh trong lúc họ đang đi xe đạp.

11. Nhóm của Tina muốn biết học sinh đạp xe trên những con đường nào để đi học. Họ hỏi tất cả học sinh đạp xe đi học và làm một bản đồ thị về điều này. Dựa theo bản đồ thị, 3 đường nào được dùng nhiều nhất?



A. A, B, và E
B. B, D, và E
C. C, D, và E
D. D, E, và F.

12. Học sinh quyết định chú trọng vào 3 con đường mà người đi xe đạp dùng nhiều nhất. Những tin tức phụ nào mà học sinh nên biết về những con đường ấy ?

E. Bao nhiêu tai nạn xe đạp đã xảy ra trên mỗi đường
F. Bao nhiêu học sinh bảo tồn xe đạp của họ tốt
G. Bao nhiêu học sinh dùng xe bus thay vì xe đạp để đi học
H. Con đường nào ngắn nhất để đi đến trường.

TIẾP TỤC Ở TRANG KẾ

KHU VƯỠNG BÊN CẠNH CỬA SỔ TRONG LỚP HỌC CỦA BÃ JACKSON

Học sinh trong lớp học của bà Jackson làm một cuộc thí nghiệm về những điều kiện ảnh hưởng đến sự phát triển của cây cối. Trước hết, họ muốn biết cây cối phát triển tốt hơn dưới ánh sáng thiên nhiên (ánh sáng mặt trời) hay dưới ánh sáng nhân tạo (ánh sáng của đèn điện). Họ suy xét hai giải thuyết:

Giải thuyết I : cây cối phát triển tốt hơn dưới ánh sáng thiên nhiên
Giải thuyết II: cây cối phát triển tốt hơn dưới ánh sáng đèn điện.

Họ đặt một cây gần bên cửa sổ và một cây tương tự nhưng xa cửa sổ và dưới ánh sáng đèn điện. Học sinh lưu trữ những dữ kiện về sự phát triển của 2 cây ấy. Trong 4 câu hỏi kế tiếp, câu hỏi 13 đến 16, xác định xem giải thuyết nào được chứng minh bởi những dữ kiện do học sinh lưu trữ

13. Sau 2 tuần lễ, cây gần cửa sổ cao 8 phân và cây xa cửa sổ cao 5 phân. Điều này chứng minh cho giải thuyết nào ?

    A. Giải thuyết I
    B. Giải thuyết II
    C. Cả hai giải thuyết
    D. Không chứng minh cho giải thuyết nào cả

14. Những lá cây của cây gần cửa sổ nhỏ hơn những lá cây của cây xa cửa sổ. Điểm này chứng minh cho giải thuyết nào ?

    A. Giải thuyết I
    B. Giải thuyết II
    C. Cả hai giải thuyết
    D. Không chứng minh cho giải thuyết nào cả

15. Cả hai cây đều có những chấm nho màu vàng dưới những lá cây. Điều này chứng minh cho giải thuyết nào ?

    A. Giải thuyết I
    B. Giải thuyết II
    C. Cả hai giải thuyết
    D. Không chứng minh cho giải thuyết nào cả

16. Sau thời gian 10 tuần, cả hai cây đều được chặt tận gốc, rửa sạch và đem cân. Cây gần cửa sổ nặng 15 grams, và cây xa cửa sổ nặng 11 grams. Điều này chứng minh cho giải thuyết nào ?

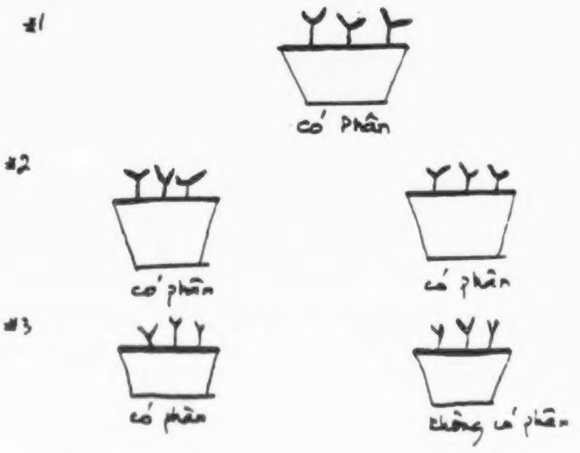
    A. Giải thuyết I
    B. Giải thuyết II
    C. Cả hai giải thuyết
    D. Không chứng minh cho giải thuyết nào cả

17. Tom muốn thí nghiệm xem phân bón có làm cho cây cối mọc tốt hơn hay không. Anh ta nghĩ ra 3 thí nghiệm khác nhau:

Thí nghiệm #1: bỏ phân bón vào 1 chậu đất và gieo 3 hạt đậu vào chậu. Săn sóc cả 3 cây như nhau và quan sát sự phát triển

Thí nghiệm #2: Lấy 2 chậu đất và bỏ phân bón vào cả 2 chậu. Gieo 3 hạt đậu vào mỗi chậu. Chăm sóc 2 chậu như nhau và quan sát sự phát triển.

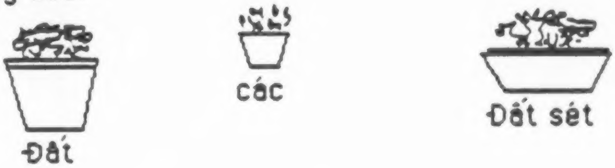
Thí nghiệm #3: Lấy 2 chậu đất, bỏ phân vào chỉ 1 chậu. Gieo 3 hạt đậu vào mỗi chậu, chăm sóc 2 chậu như nhau và quan sát sự phát triển.



Thí nghiệm nào chứng minh phân bón là tốt cho cây cối ?

A. Thí nghiệm #1
B. Thí nghiệm #2
C. Thí nghiệm #3
D. Không có thí nghiệm nào chứng minh phân bón tốt cho cây

18. Tanya muốn biết loại đất nào tốt để trồng cây từ hạt giống. Cô ta bỏ đất vào chậu thứ nhất, bỏ cát vào chậu thứ hai, và bỏ đất sét vào chậu thứ ba. Sau đó cô ta gieo 3 hạt đậu vào mỗi chậu. Cô ta đặt 3 chậu kế bên nhau gần cửa sổ và tưới nước vào mỗi chậu đồng đều.



Cây đậu phát triển tốt nhất trong chậu đất. Tại sao bà Jackson bảo rằng thí nghiệm này không phải là thí nghiệm tốt và không chứng minh được rằng cây cối phát triển tốt trong đất ?

E. Cây trong 1 chậu có thể được nhiều ánh sáng hơn cây ở chậu khác
F. 1 chậu nên đặt dưới ánh đèn điện
G. Học sinh nên thử những loại hạt giống khác
H. Số lượng đất trong mỗi chậu không đồng đều

GÓC ĐƯỜNG TẤP NẬP

Hầu hết hoc sinh đi bộ đến trường Franklin, và họ phải băng qua đường tại góc đường Lincoln Avenue và đường Broadway. Đây là 1 ngã tư rất đông xe cộ với nhiều xe chạy nhanh và không có đèn lưu thông hoặc bảng hiệu ngừng. Mặc dù có người hướng dẫn hoc sinh qua đường, cô ta sợ rằng sẽ có tai nạn trầm trọng xẩy ra.

19. Vào một buổi sáng, lớp hoc của bà Carter bàn thảo về vấn đề trên. Hoc sinh hỏi nhiều câu hỏi. Câu hỏi nào mà em nghĩ là quan trọng nhất để giải quyết vấn đề trên.

    A. Người công lộ viên làm việc vào lúc nào ?
    B. Ai được quyền ưu tiên, người lái xe hoặc người đi bộ ?
    C. Đèn đỏ, vàng và xanh của đèn lưu thông có nghĩa gì ?
    D. Làm thế nào để ngã tư được an toàn hơn ?

20. Ho quyết định phải làm 1 chuyện gì để giải quyết vấn đề. Trong những điểm sau đây, điểm nào là quan trọng nhất phải làm ?

    A. Tất cả phụ huynh chở con em đi học
    B. Yêu cầu tăng thêm nhân viên công lộ
    C. Tìm cách ngăn chận những xe chạy qúa tốc độ
    D. Tìm xem có bao nhiêu hoc sinh lo sợ về vấn đề này.

21. có một nhóm muốn biết thời gian cần thiết để băng qua đường. Họ phải làm thế nào để biết ?

    A. Dùng thước để đo chiều ngang của con đường
    B. Dùng đồng hồ để đo thời gian xe chạy ngang qua đường
    C. Dùng đồng hồ để đo thời gian học sinh đi ngang qua đường.
    D. Nhận xem hoc sinh nào băng qua đường nhanh nhất.

22. Carlos và Fred quyết định đo thời gian Lee băng qua đường. Carlos bảo rằng phải tốn 8 giây đồng hồ để Lee băng qua đường. Trong khi ấy, Fred bảo rằng phải tốn 10 giây đồng hồ để Lee băng qua đường. Họ phải làm gì bây giờ ?

    E. Thử lại 1 lần nữa, với đồng hồ mới
    F. Thử lại 1 lần nữa, dùng đồng hồ của thầy giáo
    G. Thử lại 1 lần nữa, cả hai bắt đầu đồng hồ khi Lee bước chân xuống mặt đường và ngừng đồng hồ khi Lee bước chân lên lề đường phía bên kia.
    H. Thử lại 1 lần nữa, nhưng lần này bảo Lee phải chạy từ lề bên này qua lề bên kia trong vòng 8 giây đồng hồ.

23. Carlos và Fred đo thời gian để băng qua đường của tất cả học sinh. Và thời gian trung bình để băng qua đường là 11 giây. Em có đề nghị gì để làm cho vấn đề băng qua đường được an toàn hơn ?

A. Đặt một đèn lưu thông và cứ mỗi 2 phút thì chận xe lại trong vòng 11 giây
B. Đặt một đèn lưu thông và cứ mỗi 2 phút thì chận xe lại trong vòng 15 giây
C. Dạy cho tất cả mọi người để băng qua đường trong khoảng thời gian ít hơn 11 giây
D. Nhân viên Công lộ để ngừng xe cộ lưu thông cứ mỗi 11 giây.

24. Học sinh trong lớp của bà Carter làm một bản tường thuật về những điều họ đã nghiên cứu. Bản tường thuật ấy bao gồm những đề nghị dựa trên những dữ kiện thâu thập được. Em nghĩ họ sẽ làm gì ?

E. Xin phép để thông báo với những học sinh khác trong trường Franklin về dự án của họ.
F. Yêu cầu bà Carter cho điểm cho những học sinh đã làm việc trong dự án trên
G. Yêu cầu Hiệu trưởng cung cấp những vật dụng và xây một đèn lưu thông
H. Mời một người nào đó từ sở cảnh sát đến để nghe về bản tường thuật của họ.

làm tiếp trang bên

BẢN NHIỆT ĐỘ CỦA PHÒNG HỌC

Lớp học của ông DaCosta làm một bản tường thuật về nhiệt độ trong và ngoài phòng học mỗi giờ trong một ngày mùa Thu. Những dữ kiện của họ như sau:

Nhiệt độ đo bằng độ F° vào ngày 1 tháng 10

	8 a.m.	9 a.m.	10 a.m.	11 a.m.	12 noon	1 p.m.	2 p.m.	3 p.m.
Trong phòng	62°	71°	80°	75°	72°	74°	75°	72°
Ngoài phòng	61°	65°	68°	72°	78°	82°	79°	75°

Dùng những dữ kiện trong bản trên, trả lời câu hỏi 25 đến 31

25. Lúc mấy giờ thì phòng học qúa lạnh ?

A. 8 a.m.
B. 9 a.m.
C. 1 p.m.
D. 3 p.m.

26. Lúc mấy giờ thì cần phải mở cửa sổ để phòng học được dễ chịu ?

E. 8 a.m.
F. 9 a.m.
G. 10 a.m.
H. 12 noon

27. Khoảng thời gian nào thì nhiệt độ bên ngoài tăng nhiều nhất ?

A. Giữa 8 a.m. và 9 a.m.
B. Giữa 9 a.m. và 10 a.m.
C. Giữa 11 a.m. và 12 a.m.
D. Giữa noon và 1 p.m.

28. Vào môt ngày như vậy, lúc nào thì hoc sinh nên mặc áo ấm ?

E. chỉ vào buổi sáng
F. chí vào buổi trưa
G. nguyên ngày nếu ở ngoài phòng
H. nguyên ngày nếu ở trong phòng

29. Nếu một hoc sinh mặc áo ấm đi đến lớp, vào khoảng giờ nào thì học sinh ấy sẽ muốn cởi áo ấm ra ?

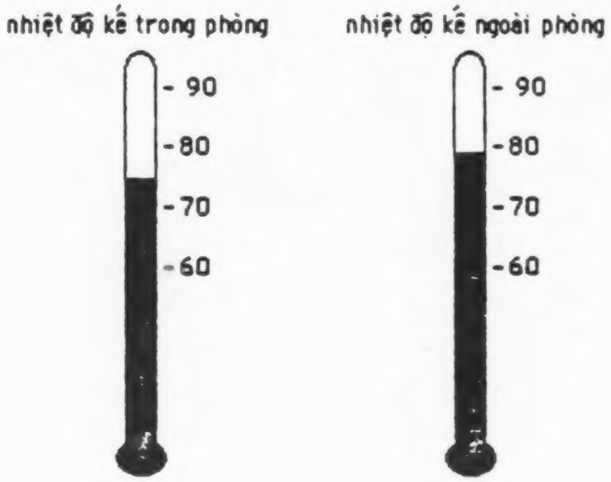
A. giữa 9 a.m. và 10 a.m.
B. giữa 10 a.m. và 11 a.m.
C. giữa 10 a.m. và 12 noon
D. giữa 2 p.m. và 3 p.m.

30. Lúc nào thì nhiệt độ bên trong và ngoài phòng khác nhau nhiều nhất ?

E. 9 a.m.
F. 10 a.m.
G. 12 noon
H. 1 p.m.

31. Hai nhiệt độ kế vẽ bên dưới đây chỉ nhiệt độ bên trong và ngoài phòng vào lúc mấy giờ ?

A. 9 a.m.
B. 11 a.m.
C. 2 p.m.
D. 3 p.m.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nhiệt độ kế ngoài phòng
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APPENDIX D.1

NOTES ON COLLABORATIVE RESEARCH
or

"Shall We Dance?"

by Margaret W. Plum

How Did You Do It?

"How did you do it?", asked a teacher union official, in an aside to the Principal Investigator who had just reported some preliminary research findings at a Boston Compact Meeting. Expressing surprise at the degree of cooperation represented by the amount and the quality of the data just reported to him and others at the meeting, he wondered aloud: "How did you get the teachers to do it?"

In his question, the union man showed a dawning appreciation of the three-year effort, calculating the price of a collaborative effort with the Boston Public Schools. He could only guess at the number of phone calls (returned and not returned), the letters and memos, the site visits, the meetings and appointments. He could appreciate the scheduling and rescheduling, the writing, the reporting, copying, collating, and stapling. He understood the amount of time, patience, tact, compromise, enthusiasm and constancy needed for the task.

Answering the question, the Principal Investigator nodded toward the Project Coordinator who was seated across the table and said, "It's because of her". The answer, while overly simplistic (and certainly understandable given the context of a side conversation at an ongoing meeting) indicates the importance of the single-minded, dedicated effort of an individual or individuals to a collaboration. Wynn De Bevoise in *Collaboration: Some Principles of Bridgework* quotes Randall Powers, former dean of Louisville's School of Education: "In the end, collaboration depends on people on both sides being willing to make it work. You can have as elaborate a mechanism as you like, but that won't carry things through. It's the people that matter".

It's the People That Matter

The people who started the collaboration were Dr. Mary Shann, the Principal Investigator; Dr. Robert Sperber, Director of the Boston Higher Education Consortium; and Ms. Diana Lam, then Area Superintendent for District A of the Boston Public Schools (now Superintendent of the Chelsea School District) who met for the first time in January, 1988. Why District A? Boston University had had a 14-year history with the District A of the Boston Public Schools. Ushered in as part of the court ordered desegration plan, the pairing linked Boston University with the schools in Brighton-Allston, Roxbury, and Jamaica Plain, then, as now, poor minority neighborhoods, with increasingly diverse ethnic minorities and languages represented. District A also provided the variance needed for the research. It was a natural partner in this collaborative research effort.

Prior to this initial meeting, Dr. Shann had formed a committee of senior advisors and interested graduate students. The advisors were chosen because of their specific areas of expertise. They were Dr. Sperber; Dr. Don Davies, Boston University Professor and President of the Institute for Responsive Education who is an authority on parent involvement in schools; Dr. Kevin Ryan, Boston University Professor and authority on moral education in schools; Dr. Kay Coleman, a specialist in measurement and research, and Dr. Joseph Cronin, President of Massachusetts Higher Education Assistance Corporation, and adjunct faculty member at Boston University School of Education. Dr. Sharon Hennessey, Principal, Wayland Senior High School, joined the advisory board in the second year of the project.

The original group of graduate students included Mary Williams, Margaret Plum, Jean Krasnow, Anna Wong, Tom Bartlett, Sue Waiter, and David Greenhalgh. The committee met several times during the summer and fall of 1987 to shape and define the school effectiveness research project in middle schools. It was determined that the purpose of the research would be to define and validate indicators of effective middle schools other than basic test scores; specifically, prosocial skills indicators and indicators of higher order thinking skills. It was also determined that the research must be a fully collaborative effort with the Boston Public Schools to be successful. By fully collaborative, the committee meant involving the participating schools in every stage of the research - the planning, the instrument construction, the administration of the instruments and data collection, the analysis of the data and the reporting process.

So it was with this open-handed attitude and collaborative spirit that Dr. Shann and Dr. Sperber met Superintendent Lam. Diana Lam was very receptive, very cordial, and very down to business. Having heard that we had three points to make, she wanted to acknowledge each one. She wanted the best for her schools--students, teachers, and administrators alike--and if we had a sound idea, she would ask her people to cooperate.

Getting the Schools to Dance

"Collaboration starts with administrative support." DeBevoise(1986) quoting Terry Brooks, formerly a middle school principal for the Jefferson County Public Schools and currently the director for middle schools programs, says," [In the school system] the superintendent's priorities get carried out; they are supported by teachers and principals. But beyond that, when the superintendent places a high value on collaboration with the university, it's easier for individuals to get support from the district-level staff for such projects."

After Supt. Lam had advised the principals to expect a call from the research team, appointments were arranged with the principals of the four middle schools in District A by the research coordinator. The interviews took place at the end of March, fully two months after the initial meeting with Supt. Lam. Scheduling meetings was to become a significant, ongoing problem and required many phone calls, confirming letters, follow-up phone calls, reconfirming letters and patience. University academic schedules are different from public school days. Testing, reporting, and vacation schedules differ. Delays between plans and execution would become the norm rather than the exception as the two institutions began to understand the rhythms of their lives. The rhythms are different and each institution dances to a different beat.

Assumptions About the Dance Program

Assumption #1: Because we are both educational institutions, we are similar, share the same goals, and speak the same language; therefore, collaboration and coordination will be smooth and easily achieved.

> "The average person who is not part of the public schools or the various institutions of higher education in this country probably has the commonsense point of view that these organizations are in the same business--education--and assumes that they work together to achieve complementary if not identical goals. The average person would undoubtedly be surprised if told that, in reality, these are very different kinds of organizations with cultures so different that professionals working with them have difficulty understanding on another's needs and values. Since all professionals in schools and universities have at one time or another been active participants in precollegiate education--as students if not as faculty or administrators-- it is even more surprising that these people have a lack of knowledge of each other's culture and a lack of awareness of how they can work together to achieve more than can be accomplished by working separately. In spite of commonsense points of view and lack of knowledge about each other's institutions, collaboration among school and university personnel is now one of the most frequently talked about approaches to the reform of education." (Clark,1988)

In spite of commonsense points of view and lack of knowledge about each other's institutions, the research collaboration between Boston University and the middle schools of District A, Boston Public Schools began.

The First Principal

Armed with a verbal proposal of the research, two open-ended questions, and enthusiasm, the Principal Investigator and Project Coordinator met the first principal. The plan was to make a brief general statement of the research proposal in order to inform but more importantly to illicit suggestions and support for the project. The questions to be asked were: 1. What factors do you see present in an effective school? What factors do you see in your school that promote effectiveness? Why do you think these factors contribute to your school's effectiveness? Give examples. 2. What factors do you see that hinder your school's effectiveness? Why? Give examples.

While the statement was designed to be brief and the questions few, our enthusiasm was abundant. It was assumed the schools would be enthusiastic too. They would be eager to participate in our middle school research.

Assumption #2: The Schools will be eager to work with us.

To say the first principal was underwhelmed to see us and hear about the research proposal would be an understatement. While he was cordial, he made it clear he had seen many research projects. "This school has hosted lots of research teams. We have been the subject of Channel 4 news. We're used to visitors." Understandably, he was reluctant to have another research intervention and intrusion. What good is research he implied as he talked about the death of the urban public school systems in the next 10 years. First New York, then Chicago, then Boston, he prophesied "Schools are caught in the cycle -- low paying jobs leads to low standard of living leads to poor education leads to low paying jobs and round and round it goes. How do we break the cycle? What's happening is central administration is interested in short term plans and the situation calls for long range planning. The Superintendent (Laval Wilson) is measured by short term miracles." As this picture of the situation was developed, our enthusiasm began to sag. Assumptions about this research collaboration had to be revisited .

It had been assumed (by the Project Coordinator, if not the Principal Investigator, who had done research in urban the schools one and two decades before) the schools would be eager to participate in this middle school research because: (1) so little research had been done in middle schools, (2) as professional educators, they would want to add to the knowledge about middle schools, (3) they would want to work with Boston University, (4) the Boston Public Schools need help, and (4) the amount of the current local and national attention focused on the decline of public schools created a sense of urgency and priority.

The Realities

The principal was bringing his realities into focus. Research is intrusive in the school day. Research places additional demands on administration and teachers. Researchers come, get their data, and leave. What do the schools get out of it? Often, not even the final report. "University consultants often come into the schools to sell their ideas and leave, just when the going gets tough. The school people are then expected to take the heat" (De Bevoise).

The principal continued," The pressures to raise reading scores are enormous. Boston schools effectiveness measures are too limited - just test scores - which leads to this pressure". The PI heartily agreed saying that it was exactly this that had led to the idea of the development of additional measures. The principal guardedly agreed to support the project and selected his Director of Instruction to be our "point person" in his school.

The Second Principal Interview

At this school, it was more a conference than an interview. This principal included her Asst. Principal and a teacher, the school's teacher union representative to discuss the project. After the group heard the proposal, the teacher spoke first, "What's in it for us? We are constantly being researched and then we hear nothing. We get nothing out of it." She had come prepared to correct this oversight and strongly offered these requests/demands to BU: opportunity for free courses at BU, addition of "research assistant" to teacher resumes, use of BU education professionals in appropriate ways.

The principal spoke next and explained that her school was already participating in another research project on At Risk Youth and wanted to join the two research efforts together to conserve the time and energies of herself, her staff and the students. She wanted the data to be shared. She also had prepared with a list of requests for BU: a calendar of relevant seminars, notices of School Effectiveness workshops and information on school-based management courses. She made some positive suggestions for the research study: (1) translate the questionnaire into

Spanish, (2) find a way to make the student questionnaire anonymous and yet coded so that student test scores can be matched with questionnaires. Information must be kept confidential. They asked for copies of the questionnaires and were told that as part of a fully collaborative research project, each of the participating schools would participate in the design of the instruments. It was agreed the university team would make the initial drafts to be submitted to the schools for suggestions.

Another Reality: Research is not a top priority in the public schools.

By the second interview, it was clear the schools were following instructions to participate in this research project but with many reservations. It was not JOB 1. As long as they had to participate, the schools were going to get as much out of the "collaboration" as they gave.

The Third Principal Interview

The principal, after hearing the proposal, launched into a hymn of praise for his school. "We are the flagship of the middle schools. Our population is a little UN. We have Vietnamese, Chinese, Japanese, Black, Hispanic, Russian - it's a good mix. Students bring their cultural attitudes about education for home. Education is a top value for some (Orientals), socializing for others (Blacks and Hispanics). Here different values come together, mix and influence across cultures", he said. He was intrigued with the values content of the research and enthusiastic about the focus on middle schools. He agreed to support the research and to let us administer the questionnaires in his school.

Then came, "What's in it for us?" He wanted opportunities for BU courses, addition of "Research Asst." to teacher resumes, use of BU video taping equipment, Mastery Learning Lab assistants, and a BU graduate student to read books from a prepared book list in order to prepare questions.

Still Another Reality

The list of requests for resources from Boston University was growing. What requests were possible? appropriate? and who was going to investigate and follow through on these requests?

There is more to collaborative research than the research goal.

Interview with the Fourth Principal

"Why was our school picked?" asked the principal and was told of Boston University's 14-year history with District A. That, however, was only part of the story. Within District A, his school and another were considered less effective by virtue of their Metropolitan Achievement Test scores, while the other two were considered more effective by the same measure. The differences among the schools would provide the range of variance needed for the study.

"Don't compare city middle schools to suburban schools. This is unfair. It's unfair to compare our school to other middle schools. Look at our school as unique and individual. This school is a safe place where students can interact. We are taking over the job formerly done by churches, the government, social agencies, and the home. Our school has replaced home. It's a pleasanter place to be that home for many of the students."

The principal's most important issue with this research was how the data would be used, how and to whom would the findings be reported. The research was discussed with special emphasis on reporting procedures. He was assured that each school would receive statistical analyses of its own school and a composite analysis of all schools. The application implications of the data collected in the teacher and student questionnaire were, for him, future staff development opportunities and enhanced service to the students .

"Schools are being asked too much - to be a social center, medical center and education center. These are ranked differently by different groups. Students' needs reflect a social, medical, educational ranking. School Administration wants an educational, social, medical ranking." The principal became very supportive of the study because of its focus on development of additional measures of school effectiveness. He agreed to (1) distribute Teacher Questionnaire on April 4 and (2) discuss research with the teachers on April 8 at Inservice Day. He suggested (1) some student questionnaires be administered orally as many students would not understand the questions unless they were read aloud and (2) some introduction and preparation for the questionnaires be given to teachers and students so the questionnaires would not be taken as a joke.

The Collaboration Had Begun

The University team had visited the schools, met the principals, described the research idea, heard the principals' concerns, pinned down a few dates and collected several useful suggestions for collecting the data. In the next week, the Directors of Instruction in each school would be selected as the "point persons" to coordinate and facilitate the first round of data collection - the administration of the teacher questionnaires and teacher interviews.

More Reality

It was immediately apparent that there were significant differences among the four schools and collaboration would have to be tailored to each schools' needs. While they were all middle schools within a district of the Boston Public School system and their schedules were similar, they differed widely in management, personnel, size, and climate. Rather than a single collaboration, there had to be four uniquely individual collaborations.

The 1988 Teacher Questionnaire

The Project Coordinator met with each Director of Instruction individually to plan the method of administration of the Teacher School Climate Questionnaire. They all agreed that, in order to get a good return from the teachers, the questionnaire should be completed by the teachers while at the school in groups rather than distributing them for completion at home. Each school wanted a different method of administration. One school chose to have it administered by two members of the university team at their April 8 Inservice Day . Two schools had the questionnaires administered at one of the schools' regularly scheduled April cluster meetings. As each school had six clusters, this required at least six members of the university team to be available for on-site visits on two days. The principal of the fourth school was finally able to organize a teachers' meeting in May. Two researchers introduced the study and administered the questionnaires.

Meanwhile, plans for selected teacher interviews were being made simultaneously. The schools were asked to select 9 teachers - 3 from each grade with varying years of experience, ethnic backgrounds, and of different sexes. Once again, the schools responded differently. Some were selected by the Directors of Instruction, some by the principal. At this point, the school secretaries began to play a significant role. Each teacher's schedule (free period) and phone number was needed to schedule the interview at the teacher's, the school's, and the interviewer's convenience. The school secretaries were the key to this process. By now, the research coordinator had met each secretary, memorized their names and knew something about the rhythms of their school day - when to call, when not to call. In all, 36 teachers were assigned to university research interviewers who made their own appointments, which were arranged on an individual basis by phone, by letter, and sometimes even by personal visit.

Building Relationships

The collaboration was growing. More and more people were becoming involved. By now, four principals, four Directors of Instruction, 175 teachers, four school secretaries, and six university researchers were interacting at some level. Each time a person from the university met a person from the schools the collaboration changed. At this stage in the development of a collaborative effort, it was critical that each interaction be unhurried, thoughtful, and considerate under any circumstances. It was especially critical in the Spring of 1988. The "Rites of Spring" in the Boston Public Schools feature the teachers waiting to hear if there will be school layoffs and who will be laid off. The Metropolitan Achievement Tests in Reading and Math along with batteries of other tests are given in the spring. The pressures to "bring the test scores up" juxtaposed with "will I be teaching next year" create an atmosphere that is fraught with tension. It was against this backdrop that initial data collection with the teachers began.

Teacher Data Collection

The administration of the questionnaires was the first time most of the teachers had heard about this school effectiveness research study. The members of the research team introduced the research clearly, encouraging any and all questions and comments from the participants. It was important the teachers understood not only the nature of the project but the level of commitment to collaboration that was being sought. The teachers' first impressions, while not wildly enthusiastic, were positive. Fully 135 of the 175 teachers completed the Teacher School Climate Questionnaire. Because of or despite the spring circumstances, the teachers had a lot to say and were willing to say it.

The teacher interviews were arranged in May and June. Again, most teachers made every effort to meet the interviewer and respond openly to the questions. Thirty-two of the 36 interviews were held as scheduled.

School Research Teams

Because of the award of the research grant by the U.S. Department of Education in August of 1988, the university team was able to continue to build the collaboration. The grant provided a stipend of $500 for each of the four teachers who would comprise the school research teams from each of the four schools. Also budgeted was money for two late afternoon/dinner meetings (to be known as the Castle Meetings) for the full research team, university and school members.

The school principals were asked to select the four teachers who would serve on the school research teams with the principals and the Directors of Instruction. In one school, the principal alone selected the four people. In two schools, the principal selected the teachers with the help of the Directors of Instruction. In the fourth school, the Director of Instruction announced the plan, asked for volunteers, and selected from those interested.

The responsibilities of the school research teams were: to attend the two full research team meetings; and to participate in the development, the administration, and the analysis of the Student School Climate Questionnaires and the Test of Problem Solving instrument.

The First General Meeting at the University "Castle"

Prior to the first Castle Meeting in January, 1989, each member of the school research teams received a copy of the agenda, a list of the participants with brief biographies, a summary of work done to date, a copy of the draft of the Student School Climate Questionnaire, and passes to a conveniently located parking garage. The objectives of the meeting were: (1) to get to know each other; (2) to learn more about the research project; and (3) to revise the draft of the student questionnaire.

Each participant was greeted at the door of The Castle by the research coordinator (a person everyone knew) and given a color coded name tag, designating the table seating at the meeting. It was a deliberate effort to mix the university and school participants. This was marginally successful. It soon became clear that many members of the group felt more comfortable sitting with people they already knew. Comfort won out as it should have at this initial meeting.

The meeting began at 3:30 p.m. with a welcome from the Dean of School of Education. The Principal Investigator, known to most of the participants, welcomed the group and asked each school spokesperson (who had been chosen by their group earlier) to give an introduction to his school and introduce the school's members. The Senior Advisors were introduced. The Principal Investigator introduced the day's work by saying, "Today is a working meeting but also a celebration of our collaborative efforts toward improving education for at risk students. This meeting is possible because of a grant for the U.S. Department of Education. Only eight proposals were successful in an intense competition that received more than 200 applications." The first reason she gave for the award was the collaborative nature of the design. She said, "It joins university based people with practitioners in the field, starting at the planning stage. We listened hard when we met with you last Spring and we incorporated many of your wants and needs into the design. We will continue seeking your advice as we proceed. It's especially important that you give us insights on how to make the results useful to teachers and other school-based personnel." She continued with the additional reasons and segued into what we have done and learned. She then asked each table to work on the Student Questionnaire, requesting that each group examine the content ("Are we asking the right questions?") and develop a plan for administration of the instrument.

The groups reported their suggestions to the full group. Among them were: additional questions, changes in terminology, and simplifications of words. They untangled the problem of confidentiality. Each booklet would have student's name and identification number. After distribution to the student, the teacher would ask the student to black out his/her name leaving the ID number to be coded when the data was processed onto the data tapes. This was an important issue because the student's questionnaire responses needed to be analyzed with his/her test data from the Boston Public Schools for the purposes of the study.

Dates in March, 1989 were scheduled for administration. It was decided the homeroom teachers would give the questionnaire with university researchers at the site to answer questions. Questionnaires would be printed in English, Spanish and Vietnamese and delivered to the schools a week prior to administration. The school team members would be responsible for delivering the surveys to the individual homerooms and collecting them after completion. Homeroom period would be extended on the day of data collection. The myriad of details involved in the administration of the student questionnaires was falling into place.

The Collaboration Grew

The day and the task had built another bridge between the two collaborating research groups. University and school educators had come together and accomplished something together. There was a good feeling as the participants went to dinner together. As Goodlad predicted, "Both individual and institutional renewal are vastly enhanced when the workplace is continuously infused with both the craftsmanship of those similarly engaged and relevant knowledge from both inside and outside the setting".

Other benefits accrue from the collaborative research phenomenon. "Lieberman (1986a), for example, focuses on teams of school and university people created to engage in research and development and six benefits that can come from such teams:

-Collaborative research and development creates a structure for teachers that facilitates reflection and action on the messiness of teaching and schooling problems.

-The team unites teachers and encourages collegial interaction.

-Both the process of group interaction and the content of what is learned narrow the gap between "doing research" and "implementing research findings"

-Naturally occurring problems that teachers have in their schools may lend themselves better to this type of research and development than large-scale funded research, as it can respect the time lines of the school people rather than the research grant.

-A collaborative team provides possibilities for teachers to assume new roles and exhibit leadership.

-Collaborative research legitimates teachers' practical understanding and their definition of problems for both research and professional development." (Clark)

Collecting the Student Data

In March, 1989 the teachers in the four schools administered the Student School Climate Survey. Data collection went smoothly and 1583 of the total population of about 1800 students completed questionnaires, approximating the average daily attendance for the four schools.

In May, 1132 students completed the Test of Problem Solving (TOPS). The schools suggested the smaller sample might have been due to lower attendance on the day of test administration. However much of the attrition could be explained by a change in the permission procedure in one of larger schools. The principal elected to send parental permission slips home to be signed by the parents if they *would permit* their student to take the TOPS. (Heretofore, the permission slips were to be returned if the parents *did not* want their students to take the test.) Of the 1132 returns, only 972 were usable. The teachers in the smallest school complained that the new test was too hard for their students and that there was already too much testing going on. That school's low rate of usable returns accounted for most of the additional loss of data for TOPS.

The Second Teacher Climate Questionnaire,1989

In May, the second Teacher Questionnaire was administered. The school research teams were responsible for distribution and collection from the teachers in their schools. Only 92 teachers responded with usable returns (in contrast to the sample of 135 in 1988). An additional 14 teachers in one school received the previous years' form of the questionnaire and their responses could not be counted. Two schools reported, because the questionnaires were anonymous, it was difficult for the teams to determine which teachers had returned their questionnaires and who had not. Their rates of response were 29 down from 55 and 14 down from 31. Clearly there were other factors operating in these two schools. May is not a happy time for Boston Public School teachers; however, the other two schools were able to do the job. The third school's response was 23, down only two from 25, and the fourth school showed an increased response, 26 up from 24.

The Second Castle Meeting, June 1989

In attendance at the June Castle Meeting were the four school research teams, the Principal Investigator, the Project Coordinator, and university research team, including the faculty advisors and the graduate student participants. Prior to the meeting, each member had received copies of the list of participants and the agenda. Each school team had met separately with the Principal Investigator and the Project Coordinator at the school to preview and analyze its student data. The task this day, after a brief overview of the project, was to review the frequency data of the student questionnaires. Each team, seated at separate tables by school, was asked to select several areas, identified by the research, that they wished to celebrate and those areas they wished to improve. They were asked to determine ways to communicate these findings to their several audiences - the rest of the school's faculty, the students, the parents, the community. The work session ended with a free exchange of ideas on use of the research information and ways to communicate the findings. The atmosphere was open. The collaboration had gathered momentum just as the two institutions prepared for their summer schedules.

Fall of 1989/Winter of 1990

Relationships with the schools were maintained. Individual lunch meetings with Principals and Directors of Instruction from the four schools were held to discuss analysis of the data of each individual school in preparation for final reporting. Each school has been kept informed about the progress of the project. It was hoped that, while the continuation of the project "Translating Research into Practice for Effective Middle Schools" did not receive funding, this established collaboration ccould provide ongoing support and help in improved practice in these four schools through this research information. Specific plans included a presentation to all the Directors of Instructions of Middle Schools in the system, which was given in April, 1990, presentations to the individual schools' teachers on inservice days, and informal help to individual principals as they build their school-based management teams.

"Collaboration is not an automatic virtue. Not every cooperative venture is destined for success. But to those who make the effort and occasionally, succeed, the rewards are high and students are well served. There can be no better reason for working together" (Maeroff, 1984).

Clark, Richard W. (1988). School-University Relationships:An Interpretive Review. School-University Partnerships in Action, Sirotnik,K.A.,& Goodlad, John I., editor. New York:Teachers College Press.

DeBevoise, Wynn (1988). Collaboration:Some Principals of Bridgework. Educational Leadership, Vol. 43, No. 5, 9-12.

Maeroff, Gene I.(1984). School and College Partnerships in Education. Princeton, N.J.: The Carnegie Foundation for the Advancement of Teaching.

APPENDIX D.2

Newsletter to Participants in

Collaborative Research for Effective Middle Schools:

Boston University School of Education and the Boston Public Schools District A

April, 1989

To: All Administrators, Teachers and Staff

From: Dr. Mary H. Shann, Project Director, on Behalf of All of the Boston University Research Team

Thank you for your help and support in this effort to learn more about making urban middle schools more effective, especially for disadvantaged youth. We appreciate your continued interest and enthusiastic cooperation as we proceed with the data collection for the research. You will be informed of the results as they become available. This news letter is intended to keep you informed about the progress of the study to date.

A great deal of activity has been underway throughout the course of this study, but we provide that information in a chronology of events at the end of the letter. Most of you want to know the results. Here are preliminary findings from analysis of the teacher data which was collected in May and June, 1988.

The design of the interviews with teachers was to inquire first about what you liked teaching in your school, and second, what you would change. As we listened to you, reread your words, and discussed the results among the team of interviewers, certain themes emerged. It is around your themes that the report is constructed.

The themes are: with regard to the **school**–the complexity of daily life, influences on the social climate and physical environment; with regard to **principals**–the balance between strong leadership and the sharing of power; with regard to **teachers**–the multiple roles which teachers are called to serve, and the need for professional recognition and professional development of true professionals; with regard to **parents**–the importance you place on their involvement in the education of their children and how to secure it; with regard to **students**–the great caring teachers and principals have about their charges.

Results on each of these themes is summarized below. Much of the information will be no news to you. It simply confirms the insights of knowledgeable, experienced educators, but it is important to gather this information systematically to persuade legislators and other policy makers, as well as other practitioners as to what needs to be done to make and maintain effective schools. The point is that research is not always what we arrive at by "common sense."

About the Schools:

Complexity of daily life in urban middle schools is considerable.

- There is continual change–in schedules, programs, and staffing.
- Students frequently transfer, their family situations in flux;
- Innumerable demands are placed on schools to provide a host of human services to students, often without commensurate resources.
- To capture this theme in quotable quotes from teachers: "*Parents want the schools to do it all.*"

- *In addition to academics, the children need to learn about living and getting along with each other....Our guidance counselor deals with 600 kids...Just how much can he do? There is no career counseling. They don't have the slightest idea. These kids are learning social skills on the street, and those aren't necessarily the right ones. They are missing a lot....We need an active health program...If not us, no one is teaching these kids anything from personal hygiene to social manners. "*

The physical environment and social climate of the school has a decided impact on how people feel and behave, according to the teachers we interviewed and what we observed.

- The schools are in varying need of maintenance; some are in great disrepair. The needs are not just cosmetic, but functional.
- *"Fix up the school; make it a prettier place to come to; do something about the peeling paint–it says something about the importance of learning; the plaster fell off that whole section, thankfully not on some student's head, but the laths and interior brick are still showing, six months after a requisition was filed."*
- Many teachers try to make their own rooms more attractive and really do succeed as brightening their environment;
- Space shapes behavior, e.g., teacher opportunities to meet in a comfortable quiet spot influence the kind of interactions which can take place;
- There will be more about this in forthcoming components of study, especially through the structured observations of physical spaces and questionnaire responses from students and teachers, but one teacher's comments summarized the need to study the schools' climate: *"While working on Wilson's new reading program, I had occasion to go to all the Boston middle schools. I could sense a particular climate or personality in each school. I wish I had been more objective then and taken notes."*

Regarding Teachers' Views of Principals:

- Teachers liked principals who hold clear, high expectations;
- Who practice strict, and consistent enforcement of discipline;
- Who enforce the schedule to promote attention to academics and who limited interruptions to classes;
- Who provide adequate resources to teachers;
- Who give teachers some say in decision making;
- **Note there is a delicate balance between strong leadership and the sharing of power with teachers;**
- The research has been noting for some time the importance of the principal's leadership but the research is less clear on how the principal how the principals accomplish these things; this is what were after: Several quotes and anecdotes are reported here to specify how leadership is portrayed. However, the pronouns are arbitrarily and consistently given in the feminine in order to honor our commitment to anonymity.
- *"Ms. X is very supportive of the bilingual. She wanted the kids, fought for the new teachers she needed, and did all the extra work to reschedule the teachers in the middle of the semester."*
- Another teacher related an anecdote about one bilingual student who was extremely upset and concerned about a serious problem at home. That student choose to seek help from an assistant principal, a real compliment to that person, she felt.
- One teacher seeking a well disciplined school with firmer control, security and safety and therefore more opportunity to deal with curriculum issues transferred to one of our schools and liked the style of his new principal very much: *"Ms. Z is everywhere!" There's very little that gets by that woman"*
- Another teacher: *Ms. X has a lot to do with the atmosphere. There's freedom, trust, and a respect for the people who work in the building. I don't know how she does it. There's method to her madness.As a specialist, I've worked in several buildings in the systems, so I've seen a few principals and how building are run. Here it's like I died and went to heaven."*
- More misc. remarks about good principals:

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- *We get a lot of support. She's always willing to listen to you. If your idea is better, she'll change.*
- *"The school is well run. You may not like all of her decisions, but she is a creative genius, fosters productivity in everyone.*
- *There's real supervision; the first week she was in my class eight times; never interrupts; notices everything, even how you talk to kids in the hall."*
- *"I was at a school where the kids had better home lives but the school was so poorly run, the staff was totally demoralized, I had to get out. It's much better here."*
- *She treats teachers as professionals.* (Librarians too.. When hired, she was given complete latitude in scheduling the use of the library.) *"I hired you as a librarian, now be a librarian."*
- *The administration really cares about the teachers and the students here.*

Teachers' Views of Themselves and Fellow Teachers:

Teachers as Professionals--

- Teachers want to be treated like professionals;
- They want participation in decision making;
- They value collegiality fostered through cluster programs or other arrangements that give them time to collaborate on curricular decisions, share information about individual students; talk about professional issues.
- Those who had these opportunities credited them as major sources of job satisfaction; those who were unhappy with their situations named isolation and the lack of opportunities to work with other teachers as things they sorely needed.
- Teachers valued supervision if it was done constructively.
- They respected principals who set clear high expectations and then followed through with consistent behavior patterns.
- Misc. quotes re what they liked:
  "Cluster system meets weekly with administrators but is teacher led.
  "Teacher relationships are very good."
  "Even as a first year teacher in the building, you have a voice."
  "We have frequent discussions of students; they don't get lost."
  "It's not unusual for teachers from this school to give up time on their weekends to help students, or to work on a special project."
  "All the teachers here are expected to be good teachers."
  "Not everyone gets along well, but all in all, the teachers here treat each other with respect."
  "We all work toward the same goal--teaching students the best we can. Teachers can respect themselves here because they are treated as professionals, so teachers can also respect each other."

Teachers as Doctors/Lawyers/Indian Chiefs--

- Not only are middle school principals supposed to walk on water, middle school teachers are expected to be all things to their students: teacher, parent, role model, disciplinarian, confidant, and provider of a whole array of counseling services--health, from personal hygiene through issues of substance abuse, pregnancy, who to deal with abusive and substance abusing parents.
- It's a daunting list of needs; professionals specialized in several of these areas of need, and the graduate level preparation is often two years or more beyond a bachelor's degree!

About Parents:

- We haven't talked to parents directly, but all of the principals and the vast majority of the teachers we talked to want more parent involvement in their schools.
- There were several suggestions from teachers regarding how to do this: *more evening activities, like spaghetti supers; hiring staff in the office who can speak Spanish (so I'm not taken out of class); I'd like to give an adult education course for the parents, both to help them learn more*

about the needs of adolescent students and to get them in touch with what the school is trying to do.

- *"The family is the key; we need intensive family therapy with the teacher linked to the process."*
- One teacher told several heartbreaking stories: *I wish we had more parents who cared; one 12-year girl was caught smuggling cocaine into her mom in the hospital. And earlier this year, four students shot tn Boston were from our school.*
- *When I have parental support here, it works. If I call a parent about homework, she will get on the kid. The real problem is "parents who do not support their kids going to school."*
- Both principals and teachers spoke of the importance of sharing ideas on how to get parents more involved.

About Students:

- As you know, your students completed our school climate questionnaire for students just two or three weeks ago. We have no formal data analysis as yet, but it will be underway as soon as we receive their computerized data on tape from a data processing firm. However, we do have a lot of information from the principals and teachers regarding your students:
- Asked: "What do you like about teaching here?", almost all of our teacher respondents named "the kids" right off the bat.
- One teacher complained of the perception that high schools in the system get more of the resources, but even she listed "the students" as her reason for being in middle school and liking it.
- Misc. comments from teachers on what you liked about teaching in your school:
  "The students keep me creative."
  "The kids, they are reachable.""
  From a totally burned out teacher, nonetheless, *"the age of the kids, the enthusiasm of the students."*
  "My students, my kids:"
  "I've had opportunities for administrative positions, but that puts me too far from the kids. I love the kids."
  "The aches and pains of puberty are everywhere."
  "The kids; they're racially diverse. You either love or hate this age group; no one wants it but I love it. You have to be totally fair and consistent."
  "The students. They're the reason why I'm here. I tell my students, "You don't work for me, I work for you!"
  "We have great students here."
- Conversations with principals echo the same sentiment:
  On a first meeting with one principal in the midst of some chatter and introductions: "*Do you have any children?* "
  "Yes, I have 500 hundred!"

This is the first of several reports you will receive on the results and interpretation of our collaborative research efforts. The formats will vary; some reports will be written, others oral; some formal, some informal. With the recent round of student data collections and more information from teachers forthcoming this month and next, the pace of our activities in data analysis will pick up considerably. I close this letter with a chronology of major events so that you will know what has transpired and what will be taking place in the near future. Please report your reactions and suggestions to the Boston University team through your school's representatives to the Research Advisory Council. Again, sincere thanks for your thoughtful participation and contributions to this research.

CHRONOLOGY OF MAJOR EVENTS

Winter, 1988 :

- Obtained permission from the Central and District A offices of the Boston Public Schools to meet with principals and teachers about collaborative research on school effectiveness.

Spring, 1988:

- Met with principals of the Curley, Edison, Lewis, and Taft Middle Schools to introduce ourselves and the ideas for collaborative research.
- Met with several groups of teachers, cluster representatives, action team members, and individual teachers to explain the plans for the study, to listen to your ideas and concerns, and to respond to valid criticisms about abuses and general lack of responsiveness on the part of investigators in previous studies in your schools.
- Wrote a proposal to the US Department of Education for funding to support collaborative research with the four middle schools of Boston, District A, incorporating the best ideas on what new knowledge is needed and what resources and practices in the conduct of the research must be included to make collaboration attractive to teachers and principals at the proposed sites.
- Administered questionnaires to teachers in each of the four schools on your perceptions of the culture and climate of your schools, the responsibilities you face, your needs and priorities. Return rates ranged from 75% to 85% across the four schools.
- Interviewed representative subsamples of teachers, stratified by years of experience, grade(s) taught, gender, and teacher's race/culture/ethnicity.

Fall, 1988

- Received announcement of US Department of Education award to conduct research for effective middle schools. Approximately 200 proposals were submitted. Only eight awards were made.
- Resumed planning with principals. Identified who would serve as teacher representatives to the Research Advisory Council. Clarified responsibilities and benefits to all parties in writing.
- Constructed and pilot tested student questionnaires. Submitted to Advisory Council Members for critique at January 30, 1989 Castle Meeting at Boston University.
- Analyzed teacher interview data for preliminary presentation at the January 30, 1989 meeting.
- Submitted teacher questionnaire to data processing firm for computer coding of data.

Winter, 1989

- Planned, conducted, and processed information from January 30, 1989 Advisor Council Meeting attended by sample school administrators, teachers, parent representatives, District leader, university based senior advisors, research associates, and staff.
- Completed final edition of the student questionnaire. Obtained and validated translations into Spanish and Vietnamese. Printed a total of 2000 copies of the instrument.
- Submitted the research plan and all tests and questionnaires to the Boston University Institutional Review Board to insure adequacy of provisions for the protection of the rights of human subjects in the research.

- Scheduled and administered the Student School Climate Questionnaire in each of the four middle schools. Reviewed each questionnaire to assure that the student's name was obliterated. Submitted the questionnaires to a bonded data processing firm for computer coding of data.

- Created observation scales for surveying school facilities and their condition and use as reflected by signs, posters, furniture, books, equipment, other resources and visible displays.

Early Spring, 1989

- Wrote proposals to three potential sponsors for entering a new phase of this collaborative research during the 1989-90 academic year, i.e., translating the research into practice.

- Revised and pilot tested the TOPS test of problem solving. Scheduled administration in May, 1989.

- Revised the 1988 Teacher Questionnaire for administration in May, 1989.

- Submitted new instruments and outline of procedures to Boston University Institutional Review Board for clearance on protection of the rights of human subjects in research.

To Be Done, Late Spring and Summer, 1989

- Administer the TOPS test of problem solving to students

- Administer the teacher questionnaire to all teachers in the four schools

- Conduct interviews of a representative subsamples of teachers

- Analyze the student questionnaire data by school and present preliminary profiles of their students' data to the administrators and teachers in each school.

- Conduct the second meeting of the Research Advisory Council on Thursday, June 8, 1989. A major focus of discussion will be how to present the results in ways that are meaningful and useful to teachers.

- Obtain data tapes from the Boston Public Schools Bureau of Research containing scores for District A middle school students on the following measures administered in May and June, 1989: Metropolitan Achievement Test, Curriculum Referenced Tests, HBJ tests, as appropriate.

- Match test scores from various measures with student questionnaire records to produce a complete set of records for each individual student, then destroy the original codes to prevent detection of any student's identity.

- Pursue comprehensive data analysis and report writing on the complete sets of data.

- Make formal and informal reports to each school.

- Prepare comprehensive and summary analyses to the sponsoring agency in ways which assure the confidentiality of each school and all individual participants.

- Hope and pray that one of the new proposals will be awarded so that we may continue our collaborative efforts into the next academic year. We will report results of the 1988-89 work, no matter what. A new grant would enable us to work with you: (1) in setting priorities according to the research results,and: (2) on translating the research into practice.